

Subject and Author Index to Volume 242

American Journal of Physiology

**American Journal of Physiology:
Cell Physiology**

**American Journal of Physiology:
Endocrinology and Metabolism**

**American Journal of Physiology:
Gastrointestinal and Liver Physiology**

**American Journal of Physiology:
Heart and Circulatory Physiology**

**American Journal of Physiology:
Regulatory, Integrative and Comparative Physiology**

**American Journal of Physiology:
Renal, Fluid and Electrolyte Physiology**

Page — Issue Guide
American Journal of Physiology
Volume 242

January	C1-C129	E1-E72	G1-G78	H1-H132	R1-R162	F1-F101
February		E73-E136	G79-G182	H133-H301		F103-F206
March	C131-C258	E137-E213	G183-G296	H303-H484	R163-R408	F207-F296
April		E215-E286	G297-G433	H485-H727		F297-F422
May	C259-C415	E287-E351	G435-G539	H729-H926	R409-R613	F423-F560
June		E353-E465	G541-G681	H927-H1134		F561-F757

Subject Index to Volume 242

A

Absorption: *see* specific subject and site
Acclimation, Acclimatization: *see* specific subject and site
Acetate
perfusion, tissue potassium and, kidney, F360
pyruvate oxidation, adrenergic stimulation, myocardial (guinea pig), H30
Acetazolamide
carbon dioxide permeability, proximal convoluted tubule, F470
carbonic anhydrase inhibition, proximal reabsorption and, F274
chemoreceptor response and, carotid body, C200
luminal fluid acidification and, kidney tubules, F521
metabolic acidosis, proximal reabsorption during, F499
Acetazolamine, specialized cell function and, urinary bladder (turtle), F627
Acetylcholine
desensitization and, muscle (frog), C319
glycogen metabolism and, muscle contraction (roundworm), R514
muscle layers, portal vein, G498
receptors, neuromuscular transmission and, C366
sodium and calcium transmembrane movement, pancreatic acinar cells, G513
Acetylsalicylic acid, gastric mucosal integrity, prostaglandin effects, G337
Acid
infused gastrin, gastric response to, G660
pancreatic secretion, protein digests of, G634
production, feedback regulation of, fasting ketogenesis, F238
secretion
gastric mucosa (piglet), G79
ionic requirements for, oxyntic cells (frog), G388
titratable, nanoliter samples, F95
Acid-base balance
changes, thermal acclimation, temperature selection and (fish), R157
fasting ketogenesis regulation, F238
potassium transport and, distal tubule, F544
regulation, carbon dioxide tension and, kidney tubules, F78
Acid-base titration, coulometric, nanoliter samples, F95
Acidemia, phosphaturia, ammonium chloride induced, F552
Acidification
acridine orange uptake, brush border vesicles, renal, F733
carbon dioxide permeability, proximal convoluted tubule, F470
luminal fluid, cortical collecting tube, F521
urinary, lithium effects, F23
Acidity, regulation, bicarbonate transport and, gastroduodenal, G183
Acidosis
cerebrovascular reactivity and (goat), R441

lactic, sodium-bicarbonate treatment, F586
lithium effects, renal, F23
metabolic
ammonium chloride and, F552
proximal reabsorption, F499
respiratory, ion transport and, intestinal, G486
Acridine orange
proton uptake, secretory granules, pancreatic β -cells, C382
uptake, brush border vesicles, renal, F733
ACTH: *see* Adrenocorticotrophic hormone
Action potentials: *see* Potentials
Activation sequence, atrial, anatomic landmarks and, H421
Active transport: *see* specific subject and site
Activity, daily, body temperature and, R1
Activity pattern, hypothalamic neurons, sympathetic nerve discharge and, R34
Acyl carnitine esters, transport, heart, H585
Adenosine
calcium uptake and, vascular smooth muscle, H797
coronary resistance and, conscious exercise, H24
free-flow functional hyperemia and, striated muscle (hamster), H688
oxygen uptake, blood flow relations, intestinal, G202
renal hemodynamics, renin release and, F423
Adenosine deaminase, hyperemia and, striated muscle (hamster), H688
Adenosine diphosphate, platelet aggregation and, fluid balance, lung (sheep), H645
Adenosine monophosphate, cyclic adrenoceptor agonist effects, parotid acinar cells, G481
calcium and, slow waves, colon, G124
catecholamine sensitivity, brown fat cells, cold acclimation, C250
dibutyryl, bicarbonate transport and, gastroduodenal (bulldog), G100
gastric stimulation, gastric glands, G504
glycogen metabolism and, muscle contraction (roundworm), R514
hexose transport, kidney cells, C94
histamine and, gastric mucosa (piglet), G79
intestinal phospholipase A, triglyceride and, G168
pancreatic acini, Gila monster venom effects, G470
parathyroid hormone receptors and, kidney (chick), E154
phosphate deprivation, nicotinamide effects, F447
phosphodiesterase inhibitor effects, pancreatic acini, G547
prostaglandin-histamine interactions, fundic glands, G21
urinary, tubular handling, growth, F705
Adenosine triphosphatase
magnesium, calcium-stimulated, sarcoplasmic reticulum, C242
oligomycin-sensitive mitochondrial, myocardial ischemia (pig), H254
transport, potassium and, kidney, F207
Adenosine triphosphate
calcium transport and, plasma membrane, myometrium, C278
chronic altitude hypoxia effects, R447
energy metabolism and, myocardium, F699
fasting and refeeding effects, pancreas, G215
ischemia, myocardial function and, newborn, H1077
lysosomes and, protection from cooling, C192
muscle, metabolite changes during stimulation, C218
phosphorus nuclear magnetic resonance spectroscopy, cardiac and skeletal muscle, H729
proton uptake, secretory granules, pancreatic β -cells, C382
sarcoplasmic reticulum function and, vascular smooth muscle, C242
Adenosine 5'-triphosphate antimycin A, cardiac function and, H79
Adenosine triphosphate-MgCl₂, treatment, shock and ischemia, R604
Adenylate cyclase
intestinal transport, intraluminal pressure effects, G65
parathyroid hormone receptors and, kidney (chick), E154
parathyroid hormone-stimulated, epinephrine inhibition, renal cortex, F721
sodium-calcium exchange and, ischemic heart, C288
Adipocytes
brown
catecholamine sensitivity, cold acclimation, C250
respiration, butyrate effects (hamster), C46
glucose transport
deactivation, insulin receptors and, E234
growth hormone effects, E368
hyperplasia, brown adipose tissue, E353
hyperplasia in, cafeteria feeding effects, R349
morphology, cold exposure and, E93
Adipose cells, swim training effects, genetic obesity, R204
Adipose cellularity, hypothalamic lesion, obesity, R311
Adipose tissue
body composition and, lateral hypothalamic lesions and obesity effects, E437
brown: *see* Brown fat
hyperplasia, cafeteria feeding effects, R349
morphology, cold exposure and, E93
vascular resistance, sympathetic activity and, tilting effects, H161
white, norepinephrine turnover, E253
ADP: *see* Adenosine diphosphate
Adrenalectomy
deoxycorticosterone, mineralocorticoid activity, E305
glucocorticoid responsiveness, intestinal enzymes, G89
modulation of insulin effects, hindlimb muscle, E323

- Adrenalectomy (continued)**
 potassium homeostasis and, F641
- Adrenal gland**
 catecholamine secretion, ionophore effects, E137
 demedullation, catecholamines and, H1015
 enucleation
 inner medullary collecting duct function and, F453
 mineralocorticoid activity, E305
 insufficiency, adrenal hormones and, F641
 responses
 adrenocorticotrophic hormones, E102
 arterial hypotension (sheep), E215
- Adrenal hormones, potassium homeostasis and, extrarenal**, F641
- Adrenal medulla, epinephrine, neurotransmitter role**, H593
- α -Adrenergic agonists, bicarbonate transport, gastric and duodenal (bullfrog)**, G100
- Adrenergic control, oxygen delivery, myocardium, exercise, awake state**, H805
- Adrenergic modulation, renin release, carotid sinus**, R318
- Adrenergic nerves, blood flow and, foot (chicken)**, R582
- Adrenergic receptors: see Receptors**
- β -Adrenergic relaxation, protein kinase and, arterial smooth muscle, coronary**, H177
- Adrenergic stimulation, pyruvate oxidation, energy-linked changes, perfused heart (guinea pig)**, H30
- Adrenoceptor agonists, effects, parotid acinar cells**, G481
- Adrenoceptors: see Receptors**
- Adrenocorticotrophic hormone**
 mean and phasic increases, corticosteroid responses, E102
 water flow, stable prostaglandin endoperoxide analogues (toad), F119
- Adrenocorticotropin, endocrine responses, arterial hypotension (sheep)**, E215
- Afferent nerves**
 peripheral neural input, stellate ganglion, R237
 splenic, reflex responses, R247
- Age, muscle structure and metabolism and, R89**
- Agglutinin, peanut, binding, epithelial cells, kidney**, C117
- Aging**
 bone, chondroosseous blood flow and, H365
 myocardial, review of, H927
 potassium homeostasis and, hyperinsulinemia, E373
- Alanine, phosphate transport, microvillus membrane vesicles, kidney**, F126
- L-Alanine, metabolism, LLC-PK, renal epithelia (pig)**, C41
- Albumin**
 clearance, intestinal mucosa, G448
 excluded volume
 increased venous pressure and, skin, H1038
 increased venous pressure and, muscle, H1044
- motility and, spermatozoa**, C304
- plasma, α -ketoisocaproate binding to, free fatty acid effects**, E67
- serum, colloid osmotic pressure, transport**
- isogravimetric hindlimb**, H512
- Alcohol, erythrocyte permeability, temperature effects**, C74
- Aldosterone**
 binding effects, sodium transport, kidney cells, F610
 binding kidney tubules, F63, F69
 extrarenal potassium homeostasis and, F641
- mineralocorticoid activity, adrenalectomy**, E305
- natriuresis and, hypertonic infusions**, F30
- plasma potassium concentration and, renal**, F599
- sodium transport and, peritubular membrane, cortical collecting tubule**, F664
- urinary acid-labile, sodium deficit effects, growth**, E241
- water deprivation and**, R296
- Alkaline phosphatase, transport, brush-border membrane, duodenal**, G533
- Alkalosis**
 respiratory, ion transport and, intestinal, G486
 venous efflux of prostaglandins, ventilatory rate effects, F38
- Allantoin, urate uptake and, kidney cortex**, F158
- Allergy, food, intestines and**, G1
- Allometry, intraspecies, kidney weight, glomerular filtration rate and**, R303
- Alveoli, surface area, regression lines with unequal slopes**, R178
- Amiloride**
 acridine orange uptake and, brush border vesicles, renal, F733
 calcium movement and, cortical collecting duct, F285
 epithelial cell culture, thick ascending limbs, kidney, C229
 phosphate transport and, cortical collecting tubules, F379
 potassium secretion and, luminal chloride effects, kidney, F46
 sodium and potassium transport, kidney tubules, F514
 sodium transport, tissues and cells, C131
- Amino acids**
 branched-chain, exercise effects, E407
 conversion, red blood cells, C393
 distribution, cerebrospinal fluid to brain and blood, F171
 free, blood, fetal and maternal (seal), R85
 gastric inhibitory polypeptides and, insulin release (foxhound), E53
 insulin and growth hormone absorption and, kidney tubules, F745
 metabolism
 hindlimb wound model, R570
 small intestine, G552
 muscle protein synthesis, E184
 pancreatectomy, mixed meal response, E335
 secretion, peptide stimulation of, G85
 supply, brain, E1
 transport, cold acclimation and, liver (fish), R280
- β -Amino acids, taurine secretion and, kidney (fish)**, R64
- γ -Aminobutyric acid, glycogen metabolism and, muscle contraction (roundworm)**, R514
- p-Aminohippuric acid transport**
- kidney tubules (monkey)**, F484
- urinary bladder (rock crab)**, R25
- α -Aminoisobutyric acid**
 distribution, cerebrospinal fluid to brain and blood, F171
- insulin and growth hormone and, kidney tubules**, F745
- Aminopyrine**
 gastrin stimulation, gastric glands, G504
 uptake, prostaglandin-histamine effects, fundic glands, G21
- Ammonia**
 nanoliter samples, acid-base titration, F95
- N-labeled, myocardial extraction**, H536
 production, glucose and, small intestine, G552
- Ammonium chloride, phosphaturia of, acidemia role**, F552
- Amphotericin B**
 phosphate transport, microvillus membrane vesicles, kidney, F126
 thermodynamic analysis, corneal epithelium (frog), F690
- Amygdaloid lesions, ingestive responses, 2-deoxy-D-glucose and insulin**, R129
- Amylase**
 adrenoceptor agonists effects, parotid acinar cells, G481
 fasting and refeeding effects, pancreas, G215
 secretion
 arachidonic acid metabolism and, pancreatic acini, G493
 cholecystokinin action, pancreatic acini, G416
 pancreatic acini, G547
- Anastomoses, arteriovenous, blood flow in, foot (chicken)**, R582
- Anemia, mitochondrial bioenergetics, muscle**, E418
- Anemometry, fiber-optic laser Doppler, coronary sinus blood flow**, H1111
- Anesthesia**
 amino acid supply during, brain, E1
 angiotensin, vasopressor and depressor actions (chicken), H314
 glucose and endocrine responses, electrical stimulation, hypothalamic, R220
- Angiotensin**
 drinking and, R136
 receptors: see Receptors
 vasopressor and depressor actions, anesthesia (chicken), H314
- Angiotensin antagonists**
 anesthesia (chicken), H314
 uteroplacental blood flow, pregnancy, H142
- Angiotensin I-converting enzyme, inhibition, drinking and**, R136
- Angiotensin II**
 central, pressor and dipsogenic responses, R498
 vasopressin and neurogenic mechanism interaction, hypertension, H37
 water regulation, dorsomedial hypothalamic lesion and, R285
- Anion**
 organic, transport, urinary bladder (rock crab), R25
 transport, liver, G628
- Anoxia**
 carnitine transport, heart, H585
 myocardial function during, coronary artery occlusion, H980

SUBJECT INDEX TO VOLUME 242

- Antennal gland, *p*-aminohippuric acid transport, urinary bladder (rock crab), R25
- Antidiuretic hormones calcium-prostaglandin interaction and, F313 hypertension, vasopressin effects, F727 NADH fluorescence, oxygen consumption, hepatocytes, C172 osmolar effects, streptozotocin diabetes, E411 spontaneous hypertension, brain, H496 Antihistamines, hyperosmolar-induced vasodilation, H450
- Antimycin A, chemoreceptor response and, carotid body, C200
- Antral muscle, excitation-contraction mechanisms, ethyl alcohol effects, G222
- Aorta adenosine triphosphate effects, sarcoplasmic reticulum, C242 constriction myocardial oxygen extraction and, H310 renal nerve modulation, renin secretion, R367 insufficiency, increased inotropic state, H973
- Aortic arch, chemoreceptor stimulation, hindlimb vein response, H1050
- Aortic bulb, diving and (beaver, nutria), R434
- Aortic flow, ascending, atrioventricular block and, awake state, H1118
- Aortic nerve denervation, fetal (lamb), H916 stimulation, cardiovascular responses to, H790
- Apical membrane, rupture effects, compliance and permeability, bladder (toad), F8
- Aprotinin, uteroplacental blood flow, pregnancy, H142
- Arachidonic acid metabolism, pancreatic acini, G493 prostanooids and, gastric vascular actions, G582
- Arginine gastric inhibitory polypeptide interaction, insulin release and, E343 metabolism red blood cells, C393 urea synthesis and, skeletal muscle cells, E87
- Arrhythmias, postcountershock, defibrillator waveform safety factor, H662
- Arsenazo III, cytosolic free calcium levels and, proximal tubules, C124
- Arterial pressure: *see* Pressure
- Arterial wall, changes, renal hypertension, H477
- Arteries: *see also* specific artery hypertensive, mechanical property changes, H477
- Arterioles afferent diameter, spontaneous hypertension, H961 renin release, enhancement of, F267 microvascular, heat stress and, cremaster muscle, H996 pial, fatty acids and cyclooxygenase and, H629 spontaneous hypertension and,
- cremaster muscle, H381 striated muscle, adenosine effects, hyperemia (hamster), H688 vascular smooth muscle, tetrodotoxin effects, H967
- Arteriovenous differences, catecholamine uptake and excretion, kidney, F56 Ascites, excretion, splanchnic control of, cirrhosis, F390
- Asphyxia, apneic, carotid bodies and baroreceptors (duck), R105 Aspirin, pial arterioles and, H629 ATPase: *see* Adenosine triphosphatase; Calcium-magnesium-ATPase; Sodium-potassium-ATPase
- ATP: *see* Adenosine triphosphate
- Atrial junction: *see* Junction
- Atrial pressure: *see* Pressure
- Atria: *see* Heart atria
- Atropine aortic constriction and, myocardial oxygen extraction, H310 cerebral vasodilation and, hypercapnia, H683 duodenogastric reflux and, G603 insulin release, sham feeding-induced, E280 receptors, smooth muscle cells and, G400 secretin, action and release, G608
- Automaticity epinephrine effects, ventricular pacemaker, H677 spontaneous, intracellular recordings, H1115
- Autonomic regulation, cardiac pacemakers, H98
- Autoperfusion, gracilis muscle, H713 Autophagy, ethionine effects, pancreas, G297
- Autoradiography amino acid supply, brain, E1 collateral circulation, development of, H1031 concentration dependency, nephron, F69 goblet cell secretion, intestinal, G370
- Autoregulation arteriovenous shunts, spontaneous hypertension, H722 blood flow, pancreas, G596 intestinal, pulsatile pressure and metabolic rate effects, H769 kidney perfusion, study method, F86 pituitary prolactin secretion, perfusion method, E226 renal, renin release, F267
- Awake state amino acid supply, brain, E1 aortic insufficiency, increased inotropic state, H973 bile acid effects, biliary secretion, G40 cardiac denervation, left atrial stretch effects, H1056 cardiac output control, atrioventricular block and, H1118 cardiovascular changes, H810 chronic unilateral denervation, kidney function with, F140 coronary artery occlusion, DNA synthesis in coronary collaterals, H1031 coronary resistance, adenosine and, H24 corticosteroid responses, adrenocorticotrophic hormones, E102 glucose load, absorption and disposition, E398 glucose uptake, insulin effects, hepatic, E97
- hypertonic saline infusion, cirrhosis, kidney response to, F390
- kidney response, volume expansion (monkey), F649 oxygen delivery, adrenergic control of, myocardium, exercise, H805 reflexes, atrial and pulmonary stretch receptors, H1065 thyrotoxicosis, left ventricular performance in (calf), H113
- B**
- Bacteremia, transvascular fluid balance during, fibronectin effects, intestines, H557
- Bainbridge reflex: *see* Reflexes
- Barber, Marshall, micropipette methods, F293
- Barium calcium paradox and, H203 smooth muscle contraction, arterial, C25
- Baroreceptor reflexes: *see* Reflexes
- Baroreceptor: *see* Receptors
- Baroreflex: *see* Reflexes
- Basolateral membrane adenylate cyclase, manganese ion effects on, renal, F457 fluidity, kidney, F246
- Behavior, sodium concentration effects, cerebrospinal fluid (sheep), R51
- Benzolamide, carbon dioxide permeability, proximal convoluted tubule, F470
- Beta probe, positron-emitting tracers, myocardial metabolism, H62
- Bethanechol, cholinergic regulation, electrolyte transport, colon, G116
- Bezold-Jarisch reflex: *see* Reflexes
- Bicarbonate absorption, lysine effects, proximal tubules, F604 anion permeability, proximal tubules, F395
- gastrointestinal transport acidity regulation and mucosal protection, G183 hormone and local transmitter effects (bulldog), G100 pancreatic secretion of, atropine effects, G608
- reabsorption carbonic anhydrase inhibition and, proximal tubules, F274 kidney tubules, F78 proximal tubules, F499 secretion, submaxillary duct epithelium, F132 transport, control mechanisms of, proximal convoluted tubule, F532
- Bile canicular flow, erythritol clearance and (baboon), G475 flow bile acid effects, G40 liver, G628 oxygen consumption and, liver (skate), G313 secretion, permeability characteristics, bile duct, G52
- Bile acid disruption mechanism, gastric mucosal barrier, G95 facilitated transport, choleretics effects, G347 taurine-conjugated, lipid secretion and sucrose clearance and, biliary, G40

- Bile duct, permeability characteristics, G52
 Bile salt, disruption mechanism, gastric mucosal barrier, G95
 Biliary excretion, hydroxyvitamin D₃, vitamin D depletion and, G522
 Biliary secretion
 bile acid structure effects, awake state, G40
 determinants of, liver (skate), G319
 Biliary tree, permeability, bile acid effects, G40
 Biogenic amine, extraction, flow dependence of, lung, H844
 Biological clock, circadian body temperature rhythms, medial preoptic lesions, R352
 Biological control systems, evolution of, R173
 Bladder: *see* Urinary bladder
 Blockade
 atrioventricular, cardiac output control and, awake state, H1118
 exocytosis, ethionine effects, pancreas, G297
 ganglion, pressor responses, vasopressin, hypertension, H44
 H_i and H₂, hyperosmolar-induced vasodilation, H450
 magnesium and phentolamine, pressor response to potassium (dogfish), R185
 β-, potassium homeostasis and, hyperinsulinemia, E373
 vagosympathetic, thirst inhibition, R452
 Blood
 arterial, prostaglandin and thromboxane excretion, urinary, E171
 artificial substitutes, working heart, H485
 chemistry, homeostasis, prolonged fasting (seal), R591
 constituents: *see* specific constituent oxygen: *see* Oxygen
 velocity, coronary sinus, measurement of, H1111
 Blood-brain barrier
 amino acid distribution, cerebrospinal fluid, F171
 amino acid transport, E1
 pharmacokinetics, R339
 Blood cells, circadian profiles, insulin receptors, E127
 Blood flow: *see also* Circulation; Microcirculation
 aortic, aortic baroreceptor responses and, H520
 bone, regional, H365
 cerebral
 carbon dioxide tension and, fetal, newborn and adult (sheep), H862
 hypercapnia and (goat), R441
 chronic reduction, uterine, pregnancy (sheep), H297
 coronary
 adenosine and, conscious exercise, H24
 determination by microspheres, H94
 myocardium, exercise, awake state, H805
 cortical, chronic caval, F370
 cremaster muscle (hamster), H211
 dexamethasone and, ischemic myocardium, H55
 ductus venosus, hemorrhage effects, umbilical, fetus (lamb), H543
 foot (chicken), R582
 gastric, pentagastrin stimulation and, G565
 hepatic: *see* Liver
 intestinal
 absorptive hyperemia and, H785
 albumin clearance and, ischemia and oxygen radical effects, G448
 dietary component effects, G27
 exchange vessels in, G570
 fetal (lamb), H50
 intraluminal pressure effects, G65
 oxygenation regulation and, G435
 pulsatile pressure and metabolic rate effects, H769
 jejunal, prostaglandins and, G140
 measurement
 coronary sinus, H1111
 pancreatic islets, E298
 mucosal, intestines, laser-Doppler velocimetry, G668
 myocardial
 coronary stenosis and, H260
 diving (seal), R97
 infarct size and risk area relations, H867
 organ, arteriovenous shunt, H722
 oxygen uptake relations, intestinal, G202
 parathyroid gland effects, calcium homeostasis, bone, E146
 portal, splanchnic hemodynamics, G156
 regional
 bypass, lung thromboxane effects (sheep), H462
 diving (beaver, nutria), R434
 measurement by microsphere method (gerbil), H990
 renal
 adenosine role in, F433
 angiotensin II effects, F149
 atrial receptors and, H220
 spontaneous hypertension, H961
 venous efflux of prostaglandins and, F38
 steady-state exercise hyperemia, potassium and osmolality effects, H949
 submandibular gland, kallikrein-kinin system and, H1010
 tilting effects, H161
 uterine, placental transfer as a function of (ewe), H429
 uteroplacental, kinins and, pregnancy, H142
 ventral medulla, hypoxia, R195
 Blood pressure: *see also* Pressure
 angiotensin II, central, R498
 catecholamine release and, exercise effects (dogfish), R306
 circulatory mechanoreceptors (turtle), R216
 control, aortic baroreceptor responses and, H520
 exercise effects, R482
 hormonal changes, neoplasia-induced hypercalcemia, E330
 prostaglandin F_{2α} effects, central nervous system, R545
 reflex response, splenic afferents, R247
 renin release, isoproterenol, dopamine and glucagon effects, F267
 systolic and diastolic, noninvasive measurement (swine), H127
 tilting effects (fish), R70
 Blood vessel, spontaneous hypertension, vascular smooth muscle, H751
 Blood volume: *see also* Volume
 circulating, endotoxic shock, H172
 interstitial fluid dynamics and, renal hypertension, awake state, H376
 pulmonary impedance and, H197
 Body, composition, lateral hypothalamic lesions and obesity effects, E437
 Bombesin
 fasting and refeeding effects, pancreas, G215
 pancreatic enzyme secretion, cholecystokinin effects, G464
 postreceptor modulation, peptide and secretin, G423
 Bone
 calcium homeostasis, parathyroid gland effects, E146
 chondroosseous blood flow, regional, H365
 loss, postmenopausal and osteoporotic women, E82
 parathyroid hormone effects, F197
 potassium and strontium exchange, H705
 Bowel, small, food intake regulation and, R429
 Bradycardia, diving, carotid bodies and baroreceptors (duck), R105
 Bradykinin, epicardial, cardiac sympathetic afferents and, H148
 Brain
 amino acid supply, E1
 blood and, amino acid distribution, F171
 capillary transfer constant, amino acid distribution, F171
 dopamine receptor activation, heat production and, R471
 pH, hypoxia, R195
 pharmacokinetics, R339
 renin, enzyme differences, E292
 spontaneous hypertension, vasopressin and, H496
 temperature, corneal convection and (pigeon), R577
 Brain-gut axis, neurotensin effects, stress-induced gastric ulcers, G342
 Brain stem, vasopressin content, spontaneous hypertension, H496
 Brain ventricles, third, anteroventral region, epinephrine uptake, H593
 Branchial ion, transport, prolactin effects, opercular membrane, R380
 Bromocriptine, prolactin secretion and, pituitary, E226
 Brown fat
 catecholamine sensitivity, cold acclimation and, C250
 heat production, butyrate effects (hamster), C46
 hyperplasia, cold adaptation and hyperphagia, E353
 norepinephrine turnover, reduced, E253
 trophic response to cold, guanethidine effects, C159
 Brush border, kidney, glucagon and insulin processing, F112
 Brush-border membrane
 duodenal, inorganic phosphate transport, G533
 fluidity, kidney, F246
 jejunal, peptidases of, ethanol effects (hamster), G442
 small intestine, sodium-chloride absorption, G263, G272
 Brush border membrane vesicles
 acridine orange uptake, renal, F733

SUBJECT INDEX TO VOLUME 242

- phosphate transport, kidney failure, F17
renal, potential-dependent D-glucose uptake, F340
sodium-chloride, entry mechanism, F561
sugar transport, kidney (flounder), F415
2-n-Butyl-methylenedioxindene, mechanics and energetics, skeletal muscle (frog), C347
Butyrate, ouabain-sensitive respiration and, brown adipocytes (hamster), C46
Bypass: *see also* Shunt blood flow during, lung thromboxane effects (sheep), H462
- C**
- Cadmium telluride, kinetics, regional myocardial, H849
Caerulein, arachidonic acid metabolism and, pancreatic acini, G493
Caffeine, inhibition, ventricular contraction, H349
Calcemia, phosphate restriction, kidney tubules, F353
Calcitonin insulin, glucagon secretion and, E206
nicotinamide effects, phosphate deprivation, F447
tubular handling, growth, F705
Calcium absorption, chlorothiazide effects, intestines, G575
activator, myocardial, neonatal, H834
adenosine monophosphate, cyclic and, slow waves, colon, G124
adenosine triphosphate protective action, lysosomes, C192
antagonists diltiazem, mesenteric artery, H325
skeletal muscle and (frog), C347
smooth muscle contraction and, arterial, C25
calcitonin effects, insulin secretion, E206
catecholamine secretion, ionophore effects, adrenal gland and spleen, E137
cellular, postreceptor modulation, G423
channel blockers, platelet α -adrenergic receptors, H19
chemical maturation, R390
comparative response, developing myocardium, H13
contractile activation, cerebral artery, H760
cytosolic, pancreatic acinar secretion, G513
cytosolic free, proximal tubules, C124
dependence, arterial smooth muscle (swine), C102
desensitization and, muscle (frog), C319
free, Ca-EGTA solutions, C404
homeostasis parathyroid gland effects, bone, E146
streptozotocin-induced diabetes mellitus, E451
hormone-induced changes, hepatocytes, C172
inorganic phosphate effects, cardiac function, H79
intracellular pools, contractile activity, smooth muscle, C36
low, solutions, cardiac slow channel activation (frog), H827
metabolism, heart cells, H1022
- microvolume samples, kidney tubules, F202
parathyroid hormone receptors and, kidney (chick), E154
permeability: *see* Permeability prostaglandin interaction, antidiuretic hormones and, F313
pump: *see* Pump
receptors: *see* Receptors sarcoplasmic reticulum, heart failure, H855
skeletal release, hypocalcemia and, E287
thyrotropin secretion, thyrotropin-releasing hormone stimulated, E109
total body, postmenopausal and osteoporotic women, E82
transepithelial potential, strontium medium (monkey), C360
transport cyclic nucleotide agonists of cholecystokinin, G161
nephron, F346
uremic ileum, G128
tubular handling, growth, F705
uptake adenosine effects, vascular smooth muscle, H797
myometrial plasma membrane, C278
sarcolemma, C242
thyroid hormone effects, muscle, R401
voltage-dependent movement, cortical collecting duct, F285
Calcium ions exchange, reoxygenation and, hypoxia, myocardium, H437
influx, pancreatic β -cell, E59
myosin light chain phosphorylation and, smooth muscle (swine), C109
paradox, barium effects, H203
parathyroid hormone receptor-adenylate cyclase system regulation, kidney, F457
Calcium-magnesium-ATPase, high-affinity, nephron, F346
cAMP: *see* Adenosine monophosphate, cyclic
Canalculus, transport, protoporphyrin, choleretics effects, liver, G347
Capacitance aortic arch, hindlimb vein, H1050
hepatic, active responses, neural and humoral stimuli, H1000
Capacity capillary exchange, intestinal, G570
vascular, tissue volume, monitoring device, H698
work, muscle, dietary iron effects, E418
Capillaries blood flow foot (chicken), R582
intestines, laser-Doppler velocimetry, G668
colloid osmotic pressure, isogravimetric hindlimb, H512
density, timed plasma staining, myocardium, H133
filtration coefficient, intraluminal pressure effects, G65
network geometry, red cell distribution, cremaster muscle (hamster), H211
peritubular, carbon dioxide tension, kidney, F78
permeability: *see* Permeability recruitment, oxygen regulation, intestinal, G435
- single, fluid exchange across, intestinal muscle, H268
spontaneous hypertension and, cremaster muscle, H381
whole-body transport parameters, osmotic transient data, R227
Capsaicin, injection, cardiovascular depression and, liver, H955
Captopril blood flow and, salivary glands, kinin effects, H1010
drinking and, R136
Carbachol arachidonic acid metabolism and, pancreatic acini, G493
intracerebroventricular, free fatty acid mobilization and, E248
Carbamylcholine fasting and refeeding effects, exocrine pancreas, G215
pancreatic enzyme secretion, cholecystokinin effects, G464
postreceptor modulation, peptide and secretin, G423
Carbohydrates consumption, hypoxemia, fetus (sheep), H657
hyperemia and, intestinal, G27
intake, adipocyte hyperplasia and, R349
Carbon dioxide permeability: *see* Permeability carotid body chemoreceptor response to, oligomycin effects, C200
pressure, microelectrodes, permeability, proximal convoluted tubule, F470
tension cerebral blood flow and, fetal, newborn and adult (sheep), H862
proximal tubules, F78
venous efflux of prostaglandins and, F38
Carbonic anhydrase cells, specialized function, urinary bladder (turtle), F627
chemoreceptor response and, carotid body, C200
inhibition metabolic acidosis, proximal tubules, F499
proximal reabsorption and, F274
inhibitors, bicarbonate transport and, kidney tubules, F532
Cardiac cells: *see also* Heart cells; Myocardial cells sarcomere length and, direct measurement, H68
skinned, signal averager, H291
Cardiac function cardiomyopathic injuries, H191
ischemia and, newborn, H1077
thyrotoxicosis, left ventricular performance in (calf), H113
Cardiac muscle: *see* Muscle, heart
Cardiac output control, atrioventricular block and, awake state, H1118
coronary blood flow determinations, microspheres, H94
nephrectomy effects, kidney function, F181
positive end-expiratory pressure, ventricular dimensions, H549
reflexes, atrial vs. pulmonary stretch, H1065
Cardiac slow channels, activation, low-

- Cardiac slow channels, (*continued*)
 calcium solutions (frog), H827
- Cardiomyopathy, norepinephrine-induced, ventricular function after, H191
- Cardioplegia, magnesium effects, ischemic heart, species differences (rat, rabbit), H89
- Cardiovascular adjustments, diving (beaver, nutria), R434
- Cardiovascular changes, veratridine, awake state, H810
- Cardiovascular responses, aortic nerve stimulation, H790
- Carnitine, transport, isolated perfused heart, H585
- Carotid artery, myosin light chain phosphorylation, vascular smooth muscle (swine), C109
- Carotid body
 chemoreceptors: *see* Receptors
 diving responses, control of (duck), R105
- Carotid sinus
 atrial receptors, renal blood flow and, H220
- baroreceptors: *see* Receptors
- baroreflex, vagotomy and, H580
- bilateral occlusion, nephrectomy effects on kidney function, F181
- deformation, planimetric technique for measuring, H921
- denervation, atrial receptors (monkey), F592
- pressure, aortic nerve stimulation, H790
- renin release, adrenergic modulation of, R318
- γ -Carrageenan, wound, perfused hindlimb, R570
- Catecholamines
 adrenal medullary, neurotransmitter role, H593
- blood pressure changes and, exercise effects (dogfish), R306
- cardiovascular effects, central nervous system, R545
- glycogenolysis control, exercise, muscle, E25
- myocardial cell hypertrophy and, hypertension, H1015
- plasma
 enforced diving and (harbor seal), R528
- fluctuations (monkey), E40
- potassium accumulation and, ischemia, heart, H619
- pressor response blockade, potassium (dogfish), R185
- production, neural and extraneural, kidney, F261
- release, angiotensin and, anesthesia (chicken), H314
- responses, morphine effects, E317
- rhythmic contractions, teat sphincter (cow), R181
- secretion, ionophore and, adrenal gland and spleen, E137
- sensitivity, cold acclimation, brown fat cells, C250
- uptake and excretion, kidney, F56
- Catechol methyltransferase, synaptic cleft, vascular tissue, H233
- Catheter, drift, pressure signal multiplexer, H288
- Catheterization, left-atrial, blood flow determination, microspheres, H94
- Cations
 divalent, antidiuretic hormones and, F313
- vascular, components, smooth muscle, H751
- Cell: *see also* specific type and site
 carbonic anhydrase-rich, specialized function, urinary bladder (turtle), F627
- components, sodium, vascular smooth muscle, H751
- growth, stimulation, hepatic stimulator substance, G289
- heterogeneous population, opercular membrane, prolactin effects, R380
- sodium transport, amiloride effects, C131
- volume: *see* Volume
- Central nervous system
 angiotensin II, dipsogenic and pressor responses, R498
- lipomobilizing centers,
 intracerebroventricular
 norepinephrine and, E248
- prostaglandin F₂, effects, cardiovascular, R545
- vasopressin, dipsogenic effect of, R372
- Centrifugation, density gradient, spermatozoa, C304
- Cerebral artery, calcium-dependent contractile activation, quick stretch, H760
- Cerebral cortex, oxygen delivery and consumption (gerbil), C265
- Cerebrospinal fluid: *see* Fluid
- Cerebrovascular reactivity, reduction of, hypercapnia (goat), R441
- cGMP: *see* Guanosine monophosphate, cyclic
- Chemoreceptors: *see* Receptors
- Chloride
 absorption
 cholinergic regulation, colon, G116
 tryptophan effects, jejunum, newborn, G308
- anion permeability, proximal tubules, F395
- concentration gradient, fluid-to-plasma, proximal tubular, F575
- excretion, adrenal enucleation effects, kidney, F453
- fluxes, ileum, G237
- gradient, metabolic acidosis, proximal tubules, F499
- luminal, potassium secretion and, kidney, F46
- reabsorption
 carbonic anhydrase inhibition and, proximal tubules, F274
- proximal tubules, F499
- renin activity, potassium-mediated, F463
- secretion
 opercular membrane, prolactin effects, R380
 tight junction, rectal gland (shark), C388
- self-exchange, skeletal muscle (toad), C207
- translocation, small intestinal brush-border membrane, G263, G272
- transport
 kidney tubules (salamander), F331
 liver, G628
- Chloride-36, glucose effects, Ehrlich cells, C326
- Chloride-bicarbonate exchange
 chloride conductance and, small intestinal brush-border membrane, G272
- luminal membrane, kidney tubule,
- F51
- Chlorisondamine chloride, ganglion blockade, pressor responses to vasopressin, hypertension, H44
- Chlorothiazide, calcium absorption and, intestines, G575
- Chlorpromazine, sarcolemmal lipids, inhibition of, H652
- Cholecystokinin
 action, enzyme secretion, pancreatic acini, G416
- bicarbonate transport, gastroduodenal (bullock), G100
- cyclic nucleotide agonists of, cholecystokinin receptors, G161
- fasting and refeeding effects, pancreas, G215
- food intake suppression, gastric emptying and (monkey), R491
- pancreatic exocrine response, obesity, G612
- plasma trypsinogen levels, renal failure and nephrectomy, G177
- postreceptor modulation, peptide and secretin, G423
- receptor binding, biological function and, pancreatic acini, G250
- restricted stimulation, pancreatic enzyme secretion, G464
- secretion
 capillary permeability and, intestinal, G194
- cholecystokinin receptors and, pancreatic acini, G250
- pancreatic acinar cells, G513
- peptide and secretin effects, postreceptor modulation, G423
- Cholera toxin, B subunit of, migrating action-potential complex activity, G47
- Choleretics, canicular transport, protoporphyrin, liver, G347
- Cholesterol
 biliary, bile acid effects, G40
- mitochondrial content, membrane properties and, myocardial ischemia (pig), H254
- sodium-calcium exchange and, ischemic heart, C288
- Choline, deficiency, ethionine effects, pancreas, G297
- Cholinergic agents, goblet cell secretion and, intestinal, G370
- Cholinergic nerves, atropine effects, hypercapnia, H683
- Cholinergic regulation, electrolyte transport, colon, G116
- Cholylaurine, biliary secretion, bile acid effects, G40
- Chondroosseous circulation: *see* Circulation
- Chonrichthyes, blockade, potassium pressor effects (dogfish), R185
- Chordae tendinae, fluid dynamics, heart, mathematical model, H1095
- Chromaffin tissue, blockade, potassium pressor effects (dogfish), R185
- Chromatography
 affinity, renin, brain, E292
- high-pressure liquid, uridine regulation, liver, R465
- ion exchange, coronary arterial smooth muscle, H177
- Chronotropic response, cardiac, glucagon effects, vagal stimulation, H7
- Ciliary frequency, palate epithelium (frog), C31
- Cimetidine

SUBJECT INDEX TO VOLUME 242

- gastrin stimulation, gastric glands, G504
 histamine and adenosine
 monophosphate, cyclic, gastric
 mucosa (piglet), G79
 secretion, proximal tubules, F672
 Cinefluorography, biplane, positive end-expiratory pressure, ventricular dimensions, H549
 Circadian profiles, insulin receptors, insulin-dependent diabetics, E127
 Circadian rhythm: *see* Rhythm
 Circadian system, interacting oscillators, mathematical model, R3, R17, R22
 Circulation: *see also* Blood flow;
 Microcirculation
 chondroosseous, tibia and femur, H365
 collateral, coronary artery occlusion and, awake state, H1031
 enterohepatic, biliary excretion and, G522
 gastric, prostanooids and, G582
 mechanoreceptors(turtle), R216
 mesenteric
 model of, G541
 pulsatile pressure and metabolic rate effects, H769
 metabolic theory of control, intestinal, G570
 oxygen uptake and, pancreatic, G596
 postglomerular, transcapillary exchange, molecular weight markers, model, F436
 tilting effects (fish), R70
 Cirrhosis, hypertonic saline infusion, renal response to, F390
 Citrate synthase, metabolism, seasonal acclimatization (goldfinch), R563
 Citric acid, cycle, muscle enzymes (bat), R189
 Clearance
 erythritol, canalicular bile flow and (baboon), G475
 free water, glucose metabolism and, F491
 kidney, folic acid and methotrexate (monkey), F484
 norepinephrine, lung, H844
 placental, uterine blood flow and (ewe), H429
 plasma, exercise effects, E407
 sugar, kidney (flounder), F415
 Clonidine, renin release and, carotid sinus, R318
 Cold
 acclimation
 catecholamine sensitivity, brown fat cells, C250
 insulin secretion, pancreas, E360
 leucine transport and, liver (fish), R280
 temperature selection and (fish), R157
 adaptation, hyperphagia and, brown fat hyperplasia, E353
 body, blood flow and, foot (chicken), R582
 exposure
 adipose tissue morphology and, E93
 glucose uptake and, diabetes, muscle, R109
 norepinephrine turnover and, brown fat, E253
 stress, substrate metabolism (goldfinch), R563
 trophic response to, guanethidine effects, brown fat, C159
 Collagen
 arterial wall changes, renal hypertension, H477
 glomerular basement membrane, diabetes, F385
 protein exclusion
 venous pressure and, muscle, H1044
 venous pressure and, skin, H1038
 pulmonary arteries, mechanics and composition, H245
 stretch-induced hypertrophy, skeletal muscle, wing (chicken), C333
 Collagenase, perfusion, small intestine, G147
 Colloid osmotic pressure: *see* Pressure
 Colon
 calcium absorption, chlorothiazide effects, G575
 descending, potassium transport by, C81
 electrolyte transport in, cholinergic regulation, G116
 intestinal transport, intraluminal pressure effects, G65
 potassium absorption, E209
 slow waves, adenosine monophosphate, cyclic and calcium effects, G124
 Compartmental analysis
 brain pharmacokinetics, R339
 parathyroid hormone secretion (caif), R141
 Compliance
 bladder, water permeability and, stretch (toad), F8
 diastolic, left ventricular hypertrophy, myocardial, H633
 hepatic, active capacitance, H1000
 tissue, renal hypertension, awake state, H376
 Computer studies: *see* specific subject and site; *see also* Models
 Conduction velocity, atrial, anatomic landmarks and, H421
 Connective tissue
 arterial wall properties, renal hypertension, H477
 pulmonary arteries, mechanics and composition, H245
 Consciousness
 limits of models, reflexivity of nature, R167
 tides of human, C163
 Contractile properties: *see* Muscle
 Contractile response
 depolarization-induced, smooth muscle, calcium-free solution, C36
 isometric, prolonged exercise, C65
 magnesium ion induced, smooth muscle, arterial, C25
 Contraction: *see* Muscle
 Converting enzyme inhibitor
 submandibular gland blood flow, H1010
 uteroplacental blood flow, pregnancy, H142
 Cooling, lysosomes and, effects of adenosine triphosphate, C192
 Copper, urate uptake and, kidney cortex, F158
 Cornea, convection, brain temperature effects (pigeon), R577
 Corneal epithelium, sodium and potassium active transport, thermodynamics of (frog), F690
 Coronary artery disease, acute regional ischemia and, H240
 occlusion
 circumflex, renin release, inhibition of, H107
 dexamethasone effects, H55
 DNA synthesis in coronary collaterals, awake state, H1031
 myocardial function and metabolism during, H980
 Coronary collaterals, DNA synthesis in, coronary artery occlusion, awake state, H1031
 Coronary endothelium, ischemia, acute myocardial, H337
 Coronary resistance: *see* Resistance
 Coronary sinus
 blood flow, measurement, H1111
 microsphere loss, left ventricular myocardium, H392
 Corpus striatum, dopamine receptor activation, heat production and, R471
 Cortical activity, hypothalamic neurons and, R34
 Corticosteroid-binding globulin, ontogeny, thyroxine effects, postnatal development, E33
 Corticosteroids, responses, adrenocorticotrophic hormone increases, E102
 Corticosterone
 binding effects, sodium transport, kidney cells, F610
 calcium homeostasis and, streptozotocin-induced diabetes mellitus, E451
 electrical stimulation, hypothalamic, R220
 insulin resistance for glucose metabolism, disused soleus muscle, E12
 ontogeny, thyroxine effects, postnatal development, E33
 Cortisol, endocrine responses, arterial hypotension (sheep), E215
 Cortisone, glucocorticoid responsiveness and, postnatal development, G89
 Coupling
 excitation-contraction
 ethyl alcohol effects, antral muscle, G222
 myocardial aging and, H927
 myocardium, neonate, H834
 solute-solvent, kidney tubules, F321
 stimulus-secretion
 arachidonic acid metabolism, pancreatic acini, G493
 histamine and adenosine monophosphate, cyclic, gastric mucosa (piglet), G79
 pancreatic acinar secretion, G513
 protein carboxyl methylation and, G76
 Coupling ratio, sarcoplasmic reticulum, vascular smooth muscle, C242
 Creatine kinase
 energy metabolism and, myocardium, F699
 myocardial, dexamethasone effects on blood flow, H55
 phosphorus nuclear magnetic resonance spectroscopy, cardiac and skeletal muscle, H729
 release, osmotic changes and, muscle (frog), C398
 Creatine phosphate
 energy metabolism and, myocardium, F699
 myocardial nucleotide depletion, ischemia, open chest, H818
 phosphorus nuclear magnetic resonance spectroscopy, cardiac and skeletal muscle, H729

Cremaster muscle
capillary network geometry, red cell distribution and (hamster), H211
heat stress, arteriolar vasoconstriction and, H996
hyperemia and, adenosine effects (hamster), H688
spontaneously hypertensive, erythrocyte and plasma distribution in, H381
Crinophagy, ethionine effects, pancreas, G297
Cross-correlation analysis, hypothalamic neurons, sympathetic nerve discharge and, R34
Current, short circuit, ion transport, ileum, G237
Cyanine dye, glucose effects, Ehrlich cells, C326
Cyclamate, anion permeability, proximal tubules, F395
Cyclic adenosine monophosphate: *see* Adenosine monophosphate, cyclic
Cyclic nucleotides: *see* Nucleotides, cyclic
Cycloheximide
 mucosal gastrin receptors, up- and downregulation, G243
 vitamin D absorption and, G326
Cyclooleucine, distribution, cerebrospinal fluid to brain and blood, F171
Cyclooxygenase inhibitors
 blood flow and, jejunal, G140
 pial arteriole effects, H629
Cytochrome oxidase
 hyperplasia, brown adipose tissue, E353
 norepinephrine turnover and, brown fat, E253
Cytosol, 17 β - and 20 α -hydroxysteroid dehydrogenases, term placenta, E178

D

Defibrillator, waveforms, safety factor for, heart cells, H662
Dehydration
 cellular, physiological mechanisms for thirst (monkey), R423
 renal and endocrine responses, R296
Denervation
 cardiac, atrial stretch effects, H1056
 carotid, fetal (lamb), H916
 motor nerve, skeletal muscle, C272
 renal, catecholamine production and, F261
 sinaoartic, atrial receptors (monkey), F592
thyroid hormone action, muscle properties, R401
Deoxycorticosterone, adrenalectomy, mineralocorticoid activity, E305
Deoxycorticosterone acetate, calcium movement and, cortical collecting duct, F285
2-Deoxyglucose
 catecholamine responses, morphine effects, E317
 metabolism, free water clearance and, F491
2-Deoxy-D-glucose
 ingestive response, amygdaloid lesion effects, R129
 insulin and, norepinephrine release, hypothalamus, R596
 transport, kidney, F711
Depolarization
 contractile activity, smooth muscle, calcium-free solution, C36

potassium-free media, skeletal muscle fibers, C12
Depressor nerve, blood flow and pressure changes, aortic, H520
Derivative control, parathyroid gland, epinephrine effects (calf), R151
Desoxycorticosterone
 hypertension
 baroreflexes and vasopressin in, H44
 vasopressin and neurogenic mechanism interaction during, H37
Development: *see also* Growth; Maturation adiposity, hypothalamic-lesioned obesity, R311
biphasic, pentagastrin sensitivity, stomach, G111
carbon dioxide tension, cerebral blood flow and, fetal, newborn and adult (sheep), H862
early, reduced renal mass effects, F190
endocrine responses, arterial hypotension (sheep), E215
gastric mucosal cell proliferation, pentagastrin effects, G135
glucose transport and, ileum, fetus, G642
left ventricular hypertrophy, diastolic stiffness in, myocardial, H633
lung, thyroid hormones and, E378
postnatal
 corticosterone ontogeny, thyroxine effects, E33
 glucocorticoid responsiveness of intestinal enzymes, G89
myocardial responses, inotropic agents, H13
Dexamethasone
 blood flow and, ischemic myocardium, H55
 concentration dependency, kidney tubules, F69
Diabetes
 glomerular basement membrane and, F385
 glucoregulation in, epinephrine-glucagon interaction effects, E428
 glucose
 secretion and, intestinal, G455
 uptake, shivering thermogenesis and, muscle, R109
 inhibition of contractility, insulin effects, heart, H490
 insulin-dependent, circadian profiles of insulin receptors, E127
 insulin effects, fat and protein deposition, E19
 insulin-treated, adipose lipoprotein lipase and, E445
 metabolic response, postprandial exercise, E309
 streptozotocin
 gastrin and intestinal growth, G460
 osmolar effects on vasopressin secretion, E411
 triacylglycerol metabolism, heart, H1084
Diabetes insipidus, hypertension and, vasopressin effects, F727
Diabetes mellitus, streptozotocin-induced, calcium homeostasis in, E451
Diamide, neuromuscular transmission and (lobster), C59
Diaphragm, substrate effects, protein synthesis, muscle, E184
Diarrhea, heat-stable toxin effects, small intestine, G360
Diastolic stiffness: *see* Stiffness
Dibutyryl cAMP: *see* Adenosine monophosphate, cyclic

Dibutyryl cGMP: *see* Guanosine monophosphate, cyclic
Diet: *see* Feeding
Diffusion
 skin (snake), F681
 temperature effects, erythrocyte permeability to lipophilic solutes, C74
Digestive enzymes, flow dependence, exocrine pancreas, G32
Digitonin
 cytosolic free calcium levels and, proximal tubules, C124
 proton uptake, secretory granules, pancreatic β -cells, C382
1,25-Dihydroxyvitamin D₃: *see* Vitamin D₃
Diltiazem, smorescent muscles and neuromuscular junction, mesenteric artery, H325
Dinitrophenol, potassium transport and, descending colon, C81
2,4-Dinitrophenol
 biliary secretion, liver (skate), G319
 oxygen uptake, blood flow relations, intestinal, G202
Diphenylhexatriene fluorescence polarization, myocardial ischemia (pig), H254
2,3-Diphosphoglycerate
 chronic altitude hypoxia effects, R447
 erythrocyte levels, postnatal regulation of, H500
Disaccharidases, metabolism, germfree, G650
Diuresis
 denervation, kidney, awake state, F140
 thirst inhibition, pulmoatrial, R452
 volume expansion and, renal (monkey), F649
Diuretic, sodium transport and, tissues and cells, C131
Diving
 blood flow and metabolism, myocardial (seal), R97
 cardiovascular adjustments to (beaver, nutria), R434
 enforced, plasma catecholamine effects (harbor seal), R528
 responses, control of, carotid bodies and baroreceptors (duck), R105
DNA
 obesity, pancreatic exocrine response, G612
stretch-induced hypertrophy, skeletal muscle, wing (chicken), C333
synthesis
 coronary collaterals, awake state, H1031
 pentagastrin effects, gastric mucosal cell proliferation, G135
DOC: *see* Desoxycorticosterone
Dopa, uptake and excretion, kidney, F56
Dopamine
 fluid reabsorption and, proximal tubule, F634
 production, neural and extraneuronal, kidney, F261
prolactin secretion and, pituitary, E226
receptor activation, heat production and, brain, R471
renin release, enhancement of, F267
 uptake and excretion, kidney, F56
Dopaminergic nerves, blood flow and, foot (chicken), R582
Doppler ultrasound, noninvasive measurement, systolic and diastolic blood pressure (swine), H127

SUBJECT INDEX TO VOLUME 242

Dose dependency, ethanol, brush-border peptidases, jejunal (hamster), G442

Drinking

angiotensin II, central, R498

angiotensin-induced, R136

captopril-induced, mechanism of, R136

ingestive responses, amygdaloid lesion effects, R129

inhibition, pulmoatrial, R452

intracellular thirst, dorsomedial

hypothalamic lesion and, R285

physiological mechanism for (monkey), R423

thirst, vasopressin effects, central, R372

Drugs, entry and distribution, brain and cerebrospinal fluid, R339

Duodenal mucosa, acidity regulation,

bicarbonate transport and, G183

Duodenogastric reflux, G603

Duodenum

bicarbonate transport, hormone and local transmitter effects (bullfrog), G100

brush-border membrane, inorganic phosphate transport, G533

migrating myoelectric complexes, blood sugar oscillations and (pig), G15

postprandial duodenogastric reflux, pylorectomy, G9

Dystrophy, muscle contraction (chicken), C19

E

Edema

pulmonary

histamine effects, H565

prostacyclin effects, lung lobes, H745

uterine, theophylline-estrogen interaction and, E121

venous pressure and, muscle, H1044

Efferent nerve, cardiopulmonary sympathetic, activity, R247

Egg, oxygen consumption and growth, embryonic (albatross), R121

Elastin

arterial wall changes, renal hypertension, H477

pulmonary arteries, mechanics and composition, H245

Electrical activity, sodium effects, pancreatic β -cells, C296

Electrocardiography, high-frequency, QRS duration measurement, H507

Electrodes

calcium solutions, C404

glass and antimony, nanoliter samples, coulometric acid-base titration, F95

Electrolytes

absorption, small intestinal brush-border membrane, G272

arterial wall changes, renal hypertension, H477

balance, pH effects, distal tubule, F544

content, pulmonary arteries, H245

excretion

angiotension II effects, F149

nephrectomy effects on kidney function, F181

splanchnic control of, cirrhosis, F390

microvolume samples, kidney tubules, F202

plasma, water deprivation and, R296

slow waves and, adenosine

monophosphate, cyclic and calcium effects, G124

transport

cholinergic regulation, colon, G116

intraluminal pressure effects, small intestine, G58, G65

Electromagnetic flowmeter, cardiac output control, atrioventricular block and, awake state, H1118

Electron spin resonance, membrane fluidity, kidney, F246

Electrophoresis

free-flow, urate uptake, kidney cortex, F158

sodium dodecyl sulfate-polyacrylamide gel, protein composition, saliva, G231

Electrophysiologic studies, steroid modulation, luteinizing hormone release, E164

Embryo

contractile property development, fast-twitch muscle (chick), C52

oxygen consumption, growth and (albatross), R121

safety factor, fibrillar waveform, H662

Endocrine responses

electrical stimulation, hypothalamic, R220

water deprivation, R296

Endocytosis, horseradish peroxidase transport, jejunum, G558

Endoperoxide, derivatives, antiidiuretic hormones and, F313

Endoperoxide analogues

adrenocortotropic hormone-stimulated water flow (toad), F119

Endothelial cell

damage, monocrotaline and, H573

hyperplasia, brown adipose tissue, E353

Endothelial vesicles, pulmonary, macromolecular transport, H882

Endotoxic shock: see Shock

Endotoxin, fever, R116

Energetics

heart, pressure load vs. volume load, H942

muscle, skeletal and cardiac, Fenn effect, H1

Energy, utilization, muscle (horseshoe crab), R394

Energy balance, hypothalamic lesions, lateral, E273

Energy charge, contracture and, heart cells, H1022

Energy metabolism

acidotic cardiac ischemia, computer model, R533

exercise effects, E407

impaired, phosphate depletion and, myocardium, F699

Energy state

inorganic phosphate effects, heart, H79

potential, pressure and volume load, heart, H942

Enteroinsular axis, insulin release and (foxhound), E53

Enterotoxin, motility effects, small intestine, G360

Enzymes: see also specific enzyme acidotic cardiac ischemia and, computer model, R533

activity, kidney, F246

muscle, diet, flight and (bat), R189

release, osmotic changes and, muscle (frog), C398

renin and, brain, E292

secretion

cholecystokinin action on, pancreatic acini, G416

cyclic nucleotide agonists of cholecystokinin, G161

Eosinophils, theophylline-estrogen interaction effects, uterus, E121

Epidermis, permeability, channel structure and (snake), F631

Epididymis, sperm, motility-inhibiting factor, R199

Epinephrine

active capacitance and, hepatic, H1000 adrenergic effects, pacemakers, ventricular, H677

extrarenal potassium homeostasis and, F641

glucagon interaction, glucoregulation and, diabetes, E428

glycogenolysis control, exercise, muscle, E25

intestinal phospholipase A, triglyceride and, G168

neurotransmitter role, adrenal medulla, H593

oxygenation regulation, intestinal, G435 parathyroid gland and, rate-sensitivity mechanism (calf), R151

parathyroid hormone-stimulated adenylate cyclase, renal cortex, F721 platelet aggregation, verapamil effects, H19

production, neural and extraneuronal, kidney, F261

responses, morphine effects, E317

uptake and excretion, kidney, F56

Epithelial cells

cultured, thick ascending limbs, kidney, C229

isolated, small intestine, G147

kidney, hexose transport, C94

Epithelial tissue

sodium transport, amiloride effects, C131

water permeability of, bath osmolality effects (frog), C184

Epithelium: see also specific subject and site

absorptive, bladder to kidney (toad), F103

transport, bile duct, G52

Equations: see Models

Equilibrium hypothesis, flow dependence of protein secretion, exocrine pancreas, G32

Erythritol

¹⁴C-labeled, clearance (baboon), G475 clearance, biliary, bile acid effects, G40

Erythrocytes

distribution

capillary network geometry and, muscle (hamster), H211 spontaneously hypertensive cremaster muscle, H381

membrane, permeability, temperature effects, C74

metabolism, postnatal regulation of, H500

ornithine production, C393

permeability: see Permeability

Eserine, presynaptic receptors, neuromuscular transmission and, C366

Esophageal sphincter, lower, oxygen uptake (opossum, cat), G258

Esophagus, oxygen uptake, smooth muscle (opossum, cat), G258

Estradiol

luteinizing hormone response, luteinizing hormone-releasing hormone, pituitary, E392

- Estradiol (*continued*)
 theophylline-estrogen interaction effects, uterus, E121
 17β -Estradiol dehydrogenase, cytosol, term placenta, E173
 Estrogen, theophylline interaction and, ovary role in, uterus, E121
 Estrogen-progesterone, priming, luteinizing hormone release, E164
 Estrone, conversion to 17β -estradiol, term placenta, E178
 Ethacrynic acid, sodium reabsorption and, kidney tubules, F254
 Ethanol
 hyperemia and, intestinal, G27
 peptidases and, jejunal brush-border membrane (hamster), G442
 plasma vasopressin, water balance and, R522
 Ethionine, pancreatic effects of, G297
 Ethyl alcohol, excitation-contraction mechanisms and, antral muscle, G222
 Ethylene glycol-*bis*-(β -aminoethyl ether)-*N,N'*-tetraacetic acid, thyrotropin secretion, calcium and, E109
 Euvoolemia, reduced renal mass effects, early development, F190
 Evolution, biological control systems, R173
 Excitation-contraction coupling: *see* Coupling
 Excitatory junction potential: *see* Potentials
 Exercise
 catecholamine release, blood pressure changes and (dogfish), R306
 coronary resistance, adenosine and, H24
 exertion, dietary iron effects, muscle, E418
 glycogenolysis, muscle, E25
 hyperemia, adenosine and, striated muscle (hamster), H688
 leucine metabolism and, E407
 oxygen delivery, adrenergic control of, myocardium, awake state, H805
 postprandial, metabolic response to, diabetes, E309
 prolonged, muscle fatigue and, C65
 steady-state, hyperemia, potassium and osmolarity effects, H949
 stress, renal function and, R482
 swim training, genetic obesity, R204
 treadmill, coronary resistance, adenosine and, H24
 Exertion: *see* Exercise
 Exocrine glands, kallikrein, plasma, radioimmunoassay for, H602
 Exocrine pancreas: *see* Pancreas
 Exocytosis
 blockade of, ethionine and, pancreas, G297
 proton uptake, secretory granules, pancreatic β -cells, C382
 Extracellular marker, cobaltic EDTA, heart, H671
 Extracellular space
 brain, drug entry and distribution, R339
 epithelial tissue, bath osmolarity effects, water permeability (frog), C184
 Extracorporeal circuits, kidney perfusion, autoregulation, F86
 Eye
 circadian rhythm, serotonin and (mollusk), R326
 phase shifting, rhythm, serotonin and (mollusk), R333
 temperature, corneal convection and (pigeon), R577
- F**
- Fasting
 blood chemistry, homeostasis and (seal), R591
 food deprivation, plasma insulin levels and (monkey), R255
 intestinal phospholipase A, triglyceride lipase and, G168
 ketogenesis, hydrogen ions and, acid-base balance effects, F238
 modulation of insulin effects, hindlimb muscle, E323
 mucosal gastrin receptors, up- and downregulation, G243
 refeeding effects, pancreatic enzymes and secretagogue responsiveness, G215
 Fat
 absorption, capillary permeability and, intestinal, G194
 chemical maturation, R380
 deposition, insulin effects, diabetes, E19
 dietary, severe obesity, R212
 hyperemia and, intestinal, G27
 Fat cells: *see* Adipocytes
 Fatigue, muscle, epinephrine effects, exercise, E25
 Fatty acids
 free
 diabetic control, epinephrine interaction, E428
 epinephrine effects, muscle, E25
 α -ketoisocaproate binding to albumin, E67
 mobilization, intracerebroventricular norepinephrine and, E248
 pancreatectomy, mixed meal response, E335
 plasma, seasonal acclimatization (goldfinch), R563
 intermediates, sodium-potassium-ATPase activity and, cardiac sarcolemma, H456
 oxidation, acidotic cardiac ischemia, R533
 release, brown fat cells, cold acclimation and, C250
 unsaturated, pial arteriole effects, H629
 Feedback, biological control systems, evolution of, R173
 Feeding
 body weight regulation, hypothalamic damage and, R265
 cafeteria, adipocyte hyperplasia and, R349
 diet
 lateral hypothalamic lesion and obesity, E437
 muscle enzymes and (bat), R189
 dietary iron effects, mitochondrial energetics, muscle, E418
 dietary modulation, pancreatic α -cells, G354
 digested food, blood flow and, jejunal, G140
 energy balance, hypothalamic lesions and, E273
 fasting and refeeding effects, pancreatic enzymes and secretagogue responsiveness, G215
 food allergy, intestines, G1
 food intake regulation, ileum, R429
- high-protein diet, pancreatic α -cell modulation, G354
 ingestive responses, amygdaloid lesion effects, R129
 intestinal blood flow, dietary component effects, G27
 low-calcium diet, uremia, ileum, G128
 mixed meals, pancreatectomy, insulin deprivation, E335
 muscle structure and metabolism and, R89
 norepinephrine release, hypothalamus, R596
 nutrition, brown adipose tissue hyperplasia and, E353
 nutritional state, plasma insulin levels and (monkey), R255
 protein meal, duodenogastric reflux and, G603
 radioactive test meal, gastric emptying pattern, G333
 salt hunger, sodium concentration in cerebrospinal fluid and (sheep), R51
 satiety, ileal transposition, R429
 severe obesity, dietary-induced, R212
 sham, insulin release, cephalic phase, E280
 suppression of food intake, cholecystokinin effects (monkey), R491
 Femoral artery, smooth muscle contraction, magnesium ion induced, C25
 Femur, chondroosseous circulation, regional, H365
 Fenn effect, muscle energetics and, H1
 Fetus: *see also* Placenta; Pregnancy
 carbon dioxide tension, cerebral blood flow and (sheep), H862
 free amino acids, blood (seal), R85
 glucose absorption, ileum, G642 hypoxemia, myocardial metabolism during (sheep), H657
 insulin development, pancreatic and plasma, E220
 insulin receptor development, lung, E384
 minerals, placenta and intestine, E47
 oxygen consumption, intestinal (lamb), H50
 oxygen delivery and venous return, hemorrhage effects, umbilical (lamb), H543
 placental transfer, uterine blood flow and (ewe), H429
 sinoaortic denervation, in utero (lamb), H96
 Fever, mechanism, endotoxin and prostaglandin E₂, R116
 Fibronectin, deficiency, fluid balance and, intestinal, sepsis, H557
 Filtration
 capillary, intestinal, G570
 glomerular
 angiotensin II effects, F149
 exercise effects, R482
 kidney rate and, R303
 methodologic considerations, F1
 nephron obstruction, F580
 plasma potassium concentration and, renal, F599
 rate, adenosine role in, F423
 reduced renal mass effects, F190
 renin release and, R552
 hepatic, active capacitance and, H1000
 Filtration coefficient

- capillary
 colloid osmotic pressure, hindlimb, H512
pancreas, G596
fluid exchange, intestinal muscle, H268
Filtration equilibrium, glomerular, methodologic considerations, F1
Fistula, gastric, cephalic phase insulin release, E280
Flow
 ammonia, myocardial, H536
 arteriolar, gracilis muscle, H713
 capacitance response to, hepatic, H1000
 dependence, norepinephrine extraction, lung, H844
 ductular, bile (baboon), G475
 plasma, papillary, chronic caval, F370
 rate, cortical collecting tubules, F379
 urine
 atrial stretch effects, H1056
 atrial vs. pulmonary stretch, H1065
 venous, gracilis muscle, H713
 visualization, branched elastic transparent vessels, model, H122
Flow dependence
 glomerular filtration rate, F1
 protein secretion, exocrine pancreas, G32
Flowmeter, electromagnetic, kidney perfusion, F86
Fluid
 absorption, lysine effects, proximal tubules, F604
 balance, transvascular, sepsis, H557
cerebrospinal
 amino acid distribution, brain and blood, F171
 pharmacokinetics, R339
 renin release and, carotid sinus, R318
 sodium concentration in, salt appetite and (sheep), R51
dynamics, mitral valve, H1095
exchange, intestinal muscle, H268
extracellular, ventral medulla, hypoxia, R195
filtration, histamine effects, lung and forelimb, H565
interstitial
 renal hypertension, awake state, H376
 space, extracellular marker, heart, H671
 tilting effects (fish), R70
luminal, acidification of, cortical collecting tubule, F521
lung, balance, platelet aggregation and (sheep), H645
production, migrating action-potential complex activity, cholera toxin and, G47
real-sorption, dopamine effects, proximal tubule, F634
transcapillary, protein movement and, H227
tubular
 acid-base titration, F95
 calcium loss from, F202
Fluorescence
 NADH, coronary artery occlusion, H980
 surface, cerebral cortex (gerbil), C265
Fluorocarbons
 macromolecular transport, pulmonary endothelium, H882
 perfusion, isolated working heart, H485
Fluosol-43, perfusion, isolated working heart, H485
Folic acid, transport, kidney tubules (monkey), F484
Food deprivation: *see* Fasting
Food intake: *see* Feeding
Force development, pulmonary arteries, mechanics and composition, H245
Force potential, maximum, tetanized smooth muscle, C283
Force-velocity relations, smooth muscle, arterial (swine), C102
Forelimb, permeability: *see* Permeability Fourier transform analysis, mucociliary frequency, palate epithelium (frog), C31
Frequency distribution, intercapillary distances, myocardial, H133
Fructose, ulceration inhibition, glycoprivic receptor system and, G429
Fundic glands, prostaglandin-histamine interactions in, G21
Furosemide
 chloride translocation, small intestinal brush-border membrane, G272
 chloride transport, kidney tubules (salamander), F331
epithelial cell culture, thick ascending limbs, kidney, C229
glucose effects, Ehrlich cells, C326
plasma renin activity, potassium-mediated, F463
- G**
- Gain
open-loop
 carotid sinus baroreflex, vagotomy and, H580
 heat loss, R275
 β -Galactosidase, glucocorticoid responsiveness and, postnatal development, G89
Ganglia, blockade: *see* Blockade
Ganglion, superior cervical, sinusal afferents in, H168
Gas, exchange, embryonic (albatross), R121
Gastric acid
 secretion
 gastrin stimulation of, G504
 peptide stimulation of, G85
 Gastric distension, cholecystokinin effects, gastric emptying (monkey), R491
Gastric emptying
 cholecystokinin effects (monkey), R491
 duodenogastric reflux and, G603
 ethyl alcohol effects, antral muscle, G222
 pattern for, G333
 postprandial duodenogastric reflux and, pylorectomy, G9
Gastric fistula, infused gastrin, gastric response to, G660
Gastric function, biphasic development, pentagastrin sensitivity, G111
Gastric glands, gastrin stimulation of, G504
Gastric motility: *see* Motility
Gastric mucosa
 acidity regulation, bicarbonate transport and, G183
 acid secretion, ionic requirements for, oxytic cells (frog), G388
 bicarbonate transport, hormone and transmitter effects (bullfrog), G100
 blood flow, laser-Doppler velocimetry, G668
 growth, pentagastrin effects, G135
 histamine, adenosine monophosphate, cyclic and (piglet), G79
 integrity, prostaglandins and, G337
- Gastric mucosal barrier, disruption mechanism, bile salt and bile acid, G95
Gastric mucosal cells, proliferation, development, pentagastrin effects, G135
Gastric response, kinetics of, infused gastrin, G660
Gastric secretion, after pylorectomy, G9
Gastric transport, bicarbonate, hormone and local transmitter effects (bullfrog), G100
Gastrin
 gut growth and, streptozotocin diabetes, G460
 infused, gastric response kinetics, G660
 mucosal, up- and downregulation, G243
 stimulation, gastric glands, G504
Gastrocnenemius-plantaris muscle, steady-state exercise hyperemia, potassium and osmolality effects, H949
Gastroduodenal transport, bicarbonate, acidity regulation and mucosal protection, G183
Gastrointestinal hormones
 acidity regulation, bicarbonate transport and, G183
 bicarbonate transport and, gastroduodenal (bulldog), G100
 capillary permeability and, intestinal, G194
Gentamicin, nephrotoxicity, ion composition and, renal cortex, F477
Gills, skin and, sodium and water exchange (amphibian), R94
Glabrous epidermis, skin battery (cavy), R358
Glomerular basement membrane, biosynthesis and turnover, diabetes, F385
Glomerular filtration: *see* Filtration
Glomerular hemodynamics, altered, nephron obstruction, F580
Glomerulotubular balance, carbonic anhydrase inhibition, proximal reabsorption and, F274
Glucagon
 bicarbonate transport, gastroduodenal (bulldog), G100
 cardiac chronotropic response and, vagal stimulation, H7
 dietary modulation, pancreatic α -cells, G354
 electrical stimulation, hypothalamic, R220
 epinephrine interaction, glucoregulation and, diabetes, E428
 hepatic response to, insulin and hyperglycemia effects, E73
 hormone-induced changes, hepatocytes, C172
 insulin secretion and, calcitonin modulation of, E206
 intestinal phospholipase A, triglyceride and, G168
 metabolism, vasoactive intestinal polypeptide effects, hepatocytes, E262
 nutritional state effects (monkey), R255
 pancreatectomy, mixed meal response, E335
 plasma, cephalic phase insulin release, E280
 plasma catecholamine fluctuation and (monkey), E40

- Glucagon (continued)**
 processing, kidney tubules, F112
 release, gastric inhibitory polypeptides and arginine effects, E343
 renin release, enhancement of, F267
- Glucocorticoids**
 insulin receptor development and, lung, fetal, E384
 responsiveness, intestinal enzymes and, postnatal development, G89
 sodium-potassium-ATPase and, kidney, F207
- Glucogenesis**
 epithelium, kidney (pig), C41
 glucose metabolism, free water clearance and, F491
 lactate interrelations (penguin), R458
 oxygen consumption and, sodium transport relations, kidney, F508
- Glucoregulation**, diabetes, epinephrine-glucagon interaction effects, E428
- Glucose**
 absorption, ileum, fetus, G642
 absorption and disposition, awake state, E398
 blood, intracerebroventricular norepinephrine effects, E248
 cerebrospinal fluid, salt appetite and (sheep), R51
 Ehrlich cells, C326
 insulin, norepinephrine and, hypothalamus, R596
 insulin and glucagon response to, calcitonin modulation of, E206
 intraluminal, ammonia production and, small intestine, G552
 lactate interrelations (penguin), R458
 metabolism
 insulin effects, kidney cells, C121
 insulin resistance for, soleus muscle, E12
 muscle protein synthesis, E184
 nonoxidative, dilute urine formation and, F491
 nutritional state effects (monkey), R255
 pancreatectomy, mixed meal responses, E335
 phosphate transport, microvillus membrane vesicles, kidney, F126
 plasma
 catecholamine fluctuation and (monkey), E40
 cephalic phase insulin release, E280
 plasma concentration (penguin), R458
 plasma turnover, seasonal acclimatization (goldfinch), R563
 production, hepatic, insulin and hyperglycemia effects, E73
 proton uptake and, secretory granules, pancreatic β -cells, C382
 reabsorption, kidney tubules, F406
 release, gastric inhibitory polypeptides and arginine effects, E343
 responses, electrical stimulation, hypothalamic, R220
 secretion, diabetes effects, intestinal, G455
 transport
 acidotic cardiac ischemia, R533
 adipocytes, E368
 cholecystokinin receptors and, pancreatic acini, G250
 deactivation of, insulin receptors and, E234
 insulin effects, hindlimb muscle, E323
- ulceration inhibition, glycopivic receptor system and, G429
- uptake**
 insulin effects, awake state, liver, E97
 shivering thermogenesis and, diabetes, muscles, R109
 urate uptake and, kidney cortex, F158
- D-Glucose**
 sodium-dependent transport, heterogeneity of, proximal tubules, F406
 sodium-independent transport, brush border membrane vesicles, kidney, F340
 transport
 kidney (flounder), F415
 reconstitution, human placenta, C166
 transporter, reconstitution, human placenta, C166
- Glucostatic regulation**, ingestive responses, amygdaloid lesion effects, R129
- L-Glutamate**, metabolism, LLC-PK₁ renal epithelia (pig), C41
- Glutamine**, ammonia production from, glucose effects, small intestine, G552
- Glycemia**, oscillations, intestinal motility and (pig), G15
- Glycerol**
 perfusion, tissue potassium and, kidney, F360
 plasma, intracerebroventricular norepinephrine effects, E248
 treatment, osmotic changes, muscle (frog), C398
- Glycine**
 perfusion, tissue potassium and, kidney, F360
 stimulation, gastric acid secretion, G85
- Glycocalyx**, barium effects, calcium paradox, H203
- Glycogen**
 depletion, prolonged exercise, muscle fatigue and, C65
 epinephrine effects, muscle, exercise, E25 formation, awake state, glucose load and, E398
 metabolism
 insulin effects, kidney cells, C121
 muscle contraction and (roundworm), R514
 vasoactive intestinal polypeptide effects, hepatocytes, E262
 substrate metabolism, seasonal acclimatization (goldfinch), R563
- Glycogenolysis**
 epinephrine effects, muscle, exercise, E25 metabolites of, changes during stimulation, muscle fibers, C218
 muscle enzymes, diet, flight and (bat), R189
- Glycogen synthase**
 insulin effects, hindlimb muscle, E323
 metabolism, muscle contraction and (roundworm), R514
- Glycolysis**
 acidotic cardiac ischemia, computer model, R533
 insulin action on, intracellular pH effects, skeletal muscle (frog), C87
 muscle enzymes, diet, flight and (bat), R189
- Glycolytic parameters**, chronic altitude hypoxia effects, R447
- Glycoprotein**, mucus, goblet cell secretion, intestinal, G370
- Glycosides**, cardiac, potassium accumulation and, ischemia, H619
- Goblet cells**, intestinal, regulation of secretion, G370, G380
- Gracilis muscle**, macro- and microvascular variables, concurrent study, H713
- Granules**, secretory, proton uptake, pancreatic β -cells, C382
- Growth factor**, insulin-like, glucose transport and, adipocytes, E368
- Growth hormone**
 absorption, amino acid effects, kidney tubules, F745
 glucose transport and, adipocytes, E368
 tubular handling of inorganic phosphate, growth, F705
- Growth: see also Development; Maturation**
 active antrinizing hormone-releasing hormone, E201
 adipose tissue, low-temperature environment, E93
 control, stimulator substance, hepatic, G281, G289
 inorganic phosphate, tubular handling of, F705
 intestinal, gastrin and, diabetes effects, G460
 oxygen consumption and, embryonic (albatross), R121
 sodium deficit and, sodium excess effects, E241
 stretch-induced, wing muscle (chicken), C178
- GTP: see Guanosine triphosphate**
- Guanethidine**, trophic response to cold and, brown fat, C159
- Guanosine monophosphate**, cyclic calcium and, slow waves, colon, G124
 dibutyryl bicarbonate transport and, gastroduodenal (bulbous), G100 receptors, smooth muscle cells and, G400
 prostaglandin-histamine interactions, fundic glands, G21
- Guanosine triphosphate**, parathyroid hormone receptor-adenylate cyclase system regulation, kidney, F457
- Gut: see Intestines**
- H**
- Haloperidol, prolactin secretion and, pituitary, E226
- Halothane, amino acid supply and, brain, E1
- Heart**
 acidotic ischemia, computer model, R533 block, epinephrine effects, ventricular pacemaker, H677
 blood flow and metabolism, diving (seal), R97
 capillary density, timed plasma staining, H133
 carnitine transport, H585
 coronary artery occlusion, myocardial function during, H980
 denervated, left atrial stretch effects, awake state, H1056
 extracellular marker, cobaltic EDTA, H671
 failure, load dependence during, H855 function
 inorganic phosphate effects, H79

SUBJECT INDEX TO VOLUME 242

- working, perfused with Fluosol-43, H485
 ischemic, magnesium effects, species differences (rat, rabbit), H89
 microsphere loss from, H392
 myocardial ischemia, extracellular potassium accumulation during, H619
 norepinephrine turnover, brown fat, E253
 on-line mapping, video and multiplex techniques, H526
 performance, therapy effects, spontaneous hypertension, H776
 pressure and volume loaded, oxygen consumption rate and, H942
 puncture, blood flow measurement, microsphere method (gerbil), H990
 slow channels, low-calcium solutions (frog), H927
 sympathetic afferents, epicardial bradykinin effects, H148
 takeoff potentials, intracellular recordings, H1115
 triacylglycerol metabolism, diabetes, H1084
 ultrastructure, thyrotoxicosis (calf), H113
 working
 perfusion with Fluosol-43, H485
 pyruvate oxidation during adrenergic stimulation (guinea pig), H30
- Heart atria**
 activation sequence, anatomic landmarks and, H421
 left, catheterization, microspheres, H94
 pacemaker activity, characterization of, H98
 stretch effects, cardiac denervation, awake state, H1056
Heart cells: *see also* Cardiac cells;
 Myocardial cells
 contracture, anaerobic to aerobic transition, H1022
 defibrillator-induced damage, safety factor for, H662
 swelling, dexamethasone effects, H55
- Heart rate**
 aortic nerve stimulation and, H790
 atrial stretch effects, denervated heart, H1056
 Bainbridge reflex, R244
 control, atrioventricular block and, awake state, H1118
 exercise effects, R482
 glucagon effects, vagal stimulation, H7
 prostaglandin F_{2α} effects, central nervous system, R545
 reflexes, atrial vs. pulmonary stretch, H1065
 reflex response, splenic afferents, R247
 resting, atrial pacemaker, H98
Heart valves, prosthetic, fluid dynamics in, mathematical model, H1095
- Heart ventricles**
 contractility, α-adrenoceptor stimulation and (lamb), H405
 contraction, theophylline inhibition of, H349
 contraction force, splenic afferents, R247
 dimensional analysis, positive-pressure ventilation, H549
 function, norepinephrine-induced injury, H191
 interdependence, pressure overload and, H611
 mechanics
 aortic insufficiency, H973
 myocardial stress, H875
 pacemaker, epinephrine effects, H677
 pacing, atrioventricular block and, awake state, H1118
 performance, acute regional ischemia, H240
 pressure and volume loaded, oxygen consumption rate and, H942
Heart ventricles, left
 hypertrophy, diastolic stiffness, myocardial, H633
 microsphere loss, acute and chronic, H392
 performance
 endotoxic shock, H172
 right ventricular pressure overload, H611
 thyrotoxicosis, awake state (calf), H113
 pressure fall, H131
Heart ventricles, right
 optimum load, pulmonary impedance and, H154
 pressure overload, left ventricular performance during, H611
Heat
 body, blood flow and, foot (chicken), R582
 evaporative loss, corneal convection and (pigeon), R577
 loss, open-loop gain, R275
 production
 dopamine receptor activation and, brain, R471
 muscle contraction, dystrophy (chicken), C19
 2-n-butyl-methylenedioxymethylene effects, muscle (frog), C347
 stress, arteriolar vasoconstriction, cremaster muscle, H996
- Hematocrit**
 capillary, cremaster muscle (hamster), H211
 histamine effects, lung and forelimb permeability, H565
Hematologic parameters, chronic altitude hypoxia effects, R447
- Hemodialysis**, plasma pancreatic trypsinogens and, G177
- Hemodynamics**, pulmonary, platelet aggregation and (sheep), H645
- Hemoglobin**
 function, postnatal regulation of erythrocyte metabolism, H500
 oxygen metabolism, cerebral cortex (gerbil), C265
- Hemorrhage**
 quick mild, carotid sinus baroreflex, vagotomy and, H580
 venous return and oxygen delivery, umbilical, fetus (lamb), H543
- Henle's loop**
 peanut lectin binding, kidney epithelial cells, C117
 potassium transport
 kidney, F297
 pars recta, F226
 thick ascending limb, sodium-chloride entry mechanism, F561
- Heparin**, intestinal phospholipase A, triglyceride and, G168
- Hepatic nerve**, anterior, capsaicin injection and, H955
- Hepatocytes**
 chloride transport by, G628
 fluorescence and oxygen consumption, hormone-induced changes, C172
 glycogen metabolism in, vasoactive intestinal polypeptide effects, E262
- Hepatotropic factors**, stimulator substance, hepatic, G281
- Heterogeneity**
 D-glucose transport, kidney tubules, F406
 microvascular, cremaster muscle (hamster), H211
 sodium and potassium transport, kidney tubules, F514
- Hexamethonium chloride**, peripheral neural input, stellate ganglion, R237
- Hexokinase**, acidotic cardiac ischemia and, computer model, R533
- Hexose**, transport, sodium-dependent, kidney cells, C94
- Hierarchies**, limits of models, R167
- Hindlimb**
 muscle, insulin effects, adrenalectomy and fasting, E323
 perfused, γ-carrageenan-induced wound, R570
 veins, aortic arch chemoreceptor stimulation effects, H1050
- Histamine**
 active capacitance and, hepatic, H1000
 adenosine monophosphate, cyclic and, gastric mucosa (piglet), G79
 capillary permeability and, intestinal, G194
 gastrin stimulation, gastric glands, G504
 muscle layers, portal vein, G498
 plasma, hyperosmolar-induced vasodilation, H450
 prostaglandin E₂ interactions, fundic glands, G21
 protein permeability and, lung and forelimb, H565
- Homeostasis**
 biological control systems, evolution of, R173
 fetal, vasopressin and (lamb), F740
- Hormonal changes**
 enforced diving and, plasma catecholamine effects (harbor seal), R528
 hypertension, neoplasia-induced hypercalcemia, E330
- Hormonal control**, pancreatectomy, mixed meal responses, E335
- Hormones:** *see also* specific hormone action, glycolysis, intracellular pH effects, skeletal muscle (frog), C87 bicarbonate transport, gastric and duodenal (bullfrog), G100 binding, cyclic nucleotide agonists of cholecystokinin, G161 gut, glycogen metabolism and, hepatocytes, E262
- Horseradish peroxidase**
 molecular change, F750
 transport, jejunum, G558
- Hunger:** *see* Feeding
- Hydrochloric acid**, secretion, protein digests of, pancreas, G634
- Hydrogen**, exchange, intracellular pH effects, skeletal muscle (frog), C87
- Hydrogen ions**
 insulin action and, glycolysis, skeletal muscle (frog), C87
 ketogenesis, fasting, F238

- Hydrogen ions (continued)**
 secretion, ionic requirements for, oxyntic cells (frog), G388
 transport, urinary bladder (turtle), F627
- Hydrolysis**
 membrane, kidney tubules, F112
 sarcolemma, lysosomal lipases, H652
- Hydropenia, reduced renal mass effects, early development, F190**
- 3-Hydroxybutyrate, pyruvate oxidation, adrenergic stimulation, myocardial (guinea pig), H30**
- β -Hydroxylase-CoA dehydrogenase, metabolism, seasonal acclimatization (goldfinch), R563**
- Hydroxyproline**
 excretion, urinary, hypocalcemia, E287
 glomerular basement membrane, diabetes, F385
- 20 α -Hydroxysteroid dehydrogenase, cytosol, term placenta, E178**
- 25-Hydroxyvitamin D: see Vitamin D**
- Hypercalcemia, neoplasia-induced, hypertension, hormonal changes, E330**
- Hypercapnia**
 cerebral vasodilation, atropine effects, H683
 cerebrovascular reactivity during, reduction of (goat), R441
 ion transport and, intestinal, G486
 norepinephrine-induced injury, ventricular function after, H191
 reabsorption, proximal tubules, F499
- Hyperemia**
 absorptive, intestinal interstitial hyperosmolality, H785
 free-flow functional, adenosine and, striated muscle (hamster), H688
 intestinal, dietary component effects, G27
 postprandial intestinal, prostaglandins and, G140
 reactive gracilis muscle, H713
 pancreas, G596
 steady-state exercise, potassium and osmolality effects, H949
- Hyperglycemia**
 electrical stimulation, hypothalamic, R220
 glucagon, hepatic response to, E73
 substrate-selective maintenance, tissue potassium, renal, F360
- Hyperinflation, carotid baroreflexes, positive end-expiratory pressure and, H470**
- Hyperinsulinemia**
 hepatic glucose uptake, awake state, E97
 phagocytosis, reticuloendothelial system, E115
 plasma and pancreatic, fetus and suckling, E220
 potassium homeostasis and, E373
- Hypernatremia**
 natriuresis, aldosterone effects, F30
 water deprivation and, R296
- Hypertonality, intestinal interstitial, sodium-induced, absorptive hyperemia, H785**
- Hyperphagia, cold adaptation and, brown fat hyperplasia, E353**
- Hyperplasia**
 adipocytes, cafeteria feeding effects, R349
- brown fat, cold adaptation and hyperphagia, E353
 trophic response to, brown fat, C159
- Hyperpolarization, potassium-free media, skeletal muscle fibers, C12**
- Hypertension**
 desoxycorticosterone-salt baroreflexes and vasopressin in, H44
 vasopressin and neurogenic mechanism during, H37
 hormonal changes associated with, neoplasia-induced hypercalcemia, E330
 hypertrophy, myocardial contractile behavior after, H882
 myocardial cell hypertrophy, catecholamines and, H1015
 portal, splanchnic hemodynamics in, radiolabeled microspheres, G156
 pulmonary membrane properties, smooth muscle cells, H907
 monocrotaline effects, H573
- renal arterial wall changes, H477
 interstitial fluid dynamics, awake state, H376
 spontaneous arteriovenous shunts and, H722
 cell sodium components, vascular smooth muscle, H751
 erythrocyte and plasma distribution, cremaster muscle, H381
 renal vascular resistance in, H961
 therapy effects, cardiac performance, H776
 vasopressin and, brain, H496
 vasopressin effects, F727
- Hyperthermia, dopamine receptor activation and, brain, R471**
- Hyperthyroid, corticosteroid ontogeny and, thyroxine effects, postnatal development, E33**
- Hypertonic solution, osmotic changes, muscle (frog), C398**
- Hypertrophy**
 adipocytes, cafeteria feeding effects, R349
 cardiac arteriovenous shunt, H722
 load dependence during, H855
 therapy effects, H776
 compensatory renal, functional adaptation in early development, F190
 hypertensive, myocardial contractile behavior after, H882
 muscle contractile properties, surgical overload, hindlimb, C259
 myocardial cell, catecholamines and, H1015
 overload, left ventricular performance during, H611
 right ventricular, monocrotaline effects, H573
 smooth muscle, pulmonary hypertension, H907
 stretch-induced, skeletal muscle regression (chicken), C333
- Hyperventilation, venous efflux of prostaglandins and, F38**
- Hypocapnia, ion transport and, intestinal, G486**
- Hypodipsia, dorsomedial hypothalamic lesion, water regulation and, 285**
- Hypokalemia, potassium homeostasis and, E373**
- Hypoperfusion**
 uterine, aortic denervation, fetal (lamb), H916
 uterine blood flow, pregnancy (sheep), H297
- Hypophosphatemia, phosphate restriction and, kidney tubules, F353**
- Hypophsectomy, glucose transport and, adipocytes, E368**
- Hypotension, arterial, endocrine responses to (sheep), E215**
- Hypothalamic lesion**
 body weight regulation, R265
 dorsomedial, water regulation in, weanling, R285
 medial preoptic, circadian body temperature rhythms in, R352
 obesity, adipose cellularity development, R311
- Hypothalamus**
 anterior, thermosensitivity, R77
 dopamine receptor activation, heat production and, R471
 electrical stimulation, glucose and endocrine responses, R220
 genetic obesity, adipose cellularity development, R311
 lateral damage, body weight regulation, R265
 lateral lesions, energy balance and, E273
 steroid modulation, luteinizing hormone release, E164
 vasopressin content, spontaneous hypertension, H496
- Hypothermia**
 calcium uptake, vascular smooth muscle, H797
 dopamine receptor activation and, brain, R471
- Hypothyroidism**
 corticosteroid ontogeny and, thyroxine effects, postnatal development, E33
 developing lung and, E378
 insulin receptor development and, lung, fetal, E384
- Hypoxemia**
 arterial, platelet aggregation and, lung (sheep), H645
 metabolism, myocardial, fetus (sheep), H657
- Hypoxia**
 acclimation, regression lines with unequal slopes, R178
 adenosine and, striated muscle (hamster), H688
 chronic altitude, hematologic and glycolytic parameters and, R447
 extracellular fluid pH and blood flow during, ventral medulla, R195
 fetal, aortic denervation (lamb), H916
 membrane properties, smooth muscle cells, pulmonary hypertension, H907
 metabolism, myocardial, fetus (sheep), H657
 myocardial, renin release inhibition, H107
 tissue calcium ion gain, reoxygenation and, myocardium, H437

SUBJECT INDEX TO VOLUME 242

- responsiveness and, postnatal development, G89
- Ileum**
food intake regulation and, R429
glucose absorption, fetus, G642
intestinal transport, intraluminal pressure effects, G65
ion transport, α_2 -adrenergic receptors and, G237
uremic, calcium transport in, G128
- Imaging**, nuclear magnetic resonance, cardiac and skeletal muscle, H729
- Imidazole**, thromboxane B₂, obstructed kidney, F220
- Immune response**, sympathetic nervous system, high- and low-responders, R30
- Immunodeficiency**, intestines, G1
- γ -Immunoglobulin G**
excluded volume
increased venous pressure and, skin, H1038
increased venous pressure and, muscle, H1044
- Immunomorphology**, intestines, G1
- Immunoregulation**, sympathetic nervous system, high- and low-responders, R30
- Impedance**
pulmonary, optimum load and, right ventricle, H154
pulmonary artery, blood volume changes and, H197
- Incretin**, insulin release and (foxhound), E53
- Incubation**, prolonged, oxygen consumption and growth (albatross), R121
- Indicator-dilution technique**
potassium and strontium exchange, bone, H705
transcapillary exchange, molecular weight markers, F436
- Indometacin**
blood flow and, jejunal, G140
hyperosmolar-induced vasodilation, H450
pial arterioles and, H629
thromboxane B₂, obstructed kidney, F220
- Infant**: *see* Neonate; Newborn
- Infarction**
coronary, diving (seal), R97
myocardial
DNA synthesis and, awake state, H1031
microsphere loss and, H392
size and risk area relations, H867
- Ingestive responses**, 2-deoxy-D-glucose and insulin, amygdaloid lesion effects, R129
- Injection site**, microspheres, blood flow determination, coronary, H94
- Innervation**
dual, arteriovenous anastomoses, R582
sympathetic, brown fat and, C159
- Inorganic phosphate**
cardiac function and, H79
sodium ion cotransport, duodenal brush border membrane, G533
tubular handling of, growth, F705
- Inositol**, perfusion, tissue potassium and, kidney, F360
- Inotropic agents**, comparative response, developing myocardium, H13
- Inotropisms**, rate, myocardial, neonatal, H834
- Inotropy**, heart: *see* Muscle, heart
- Insulin**
absorption, amino acid effects, kidney tubules, F745
action, glycolysis, intracellular pH effects, skeletal muscle (frog), C87
adipose cellularity, diet and, E437
adrenalectomy and fasting, hindlimb muscle, E323
deficiency, calcium homeostasis and, diabetes, E451
2-deoxy-D-glucose and, norepinephrine release, hypothalamus, R596
diabetes, postprandial exercise and, E309
diabetes-induced inhibition of contractility and, heart, H490
diabetic control, epinephrine-glucagon interaction effects, E428
dietary modulation, pancreatic α -cells, G354
electrical stimulation, hypothalamic, R220
fasting and refeeding effects, pancreas, G215
fat and protein deposition, diabetes, E19
glucagon
hepatic response to, E73
secretion and, calcitonin modulation of, E206
- Glucose**
transport and, adipocytes, E368
uptake and, awake state, liver, E97
uptake, shivering thermogenesis, diabetes, muscle, R109
ingestive response, amygdaloid lesion effects, R129
- level, potassium homeostasis and, hyperinsulinemia, E373
- plasma
catecholamine fluctuation and (monkey), E40
development of, fetus and suckling, E220
levels, nutritional state effects (monkey), R255
postprandial, pancreatectomy and, mixed meal responses, E335
processing, kidney tubules, F112
- receptors: *see* Receptors
release
amino acids and gastric inhibitory polypeptide effects (foxhound), E53
calcium ion influx and, pancreatic β -cell, E59
cephalic phase, sham feeding-induced, E280
gastric inhibitory polypeptides and arginine effects, E343
glucose-induced, cold acclimation and, pancreas, E360
resistance, glucose metabolism, soleus muscle, E12
- secretion
cold acclimation and, pancreas, E360
reticuloendothelial system
phagocytosis, E115
sodium-potassium-ATPase and, kidney, F207
- sodium transport, glucose metabolism and, kidney cells, C121
- stimulation, sodium and potassium activities during, soleus muscle, E193
- swim training effects, genetic obesity, R204
- treatment, diabetes, lipoprotein lipase in, E445
- Internalization**, binding and, particles, macrophage phagocytosis, C339
- Interstitial fluid**: *see* Fluid
- Intervillus space**, unstirred water layer, intestine, G364
- Intestinal cells**, isolated, fasting effects, G168
- Intestinal enzymes**, glucocorticoid responsiveness and, postnatal development, G89
- Intestinal hormones**, food intake suppression, gastric emptying and (monkey), R491
- Intestinal motility**: *see* Motility
- Intestinal mucosa**, albumin clearance, ischemia and oxygen radical effects, G448
- Intestinal secretion**, tryptophan effects, jejunum, newborn, G308
- Intestinal transport**
maximal, triglyceride, G408
potassium, descending colon, C81
- Intestinal villi**, water, unstirred layer, G364
- Intestine, small**
ammonia production, intraluminal glucose effects, G552
brush-border membrane, chloride translocation mechanism, G263, G272
isolated epithelial cells, G147
lymphatic transport, triglyceride, G408
motility, heat-stable toxin effects, G360
spike bursts, minute rhythm of, species differences, G654
transport, intraluminal pressure effects, G58
- Intestines**
autoregulation, pulsatile pressure and metabolic rate effects, H769
blood flow, oxygen uptake relations, G202
bypass, food intake regulation, ileum, R429
calcium absorption, streptozotocin-induced diabetes mellitus, E451
calcium-binding protein regulation, E47
capillaries, permeability of, fat absorption and gastrointestinal hormones, G194
cholecystokinin effects, food intake and gastric emptying (monkey), R491
filtration-secretion, intraluminal pressure effects, G65
- Glucose**
secretion, diabetes, G455
transport, fetus, G642
goblet cells, regulation of secretion, G370, G380
growth, gastrin and, streptozotocin diabetes, G460
heme metabolism, epithelial cells, G147
horseradish peroxidase transport, jejunum, G558
immunophysiology, G1
interstitial hyperosmolality, sodium-induced, absorptive hyperemia, H785
- Ion transport**
 α_2 -adrenergic receptors and, G237
respiratory alkalosis and acidosis effects, G486

Intestines (continued)
 metabolism, mesenteric circulation,
 model, G541
 mucosal blood flow measurement, laser-Doppler velocimetry, G668
 oxygenation
 exchange vessels in, G570
 regulation, capillary recruitment and, G435
 oxygen consumption, fetal (lamb), H50
 postprandial hyperemia, prostaglandins and, G140
 protein degradation, G650
 transvascular fluid balance, sepsis, H557
 Intragastric titration, peptide stimulation, gastric acid secretion, G85
 Intraluminal pressure: *see* Pressure
 Intraventricular infusion, sodium, cerebrospinal fluid, salt appetite and (sheep), R51
 Inulin, biliary secretion, liver (skate), G319
 Ion
 regulation, parathyroid gland effects, bone, E146
 transport, glucose effects, C326
 Ionomycin, catecholamine secretion, adrenal gland and spleen, E137
 Ionophore A23187
 pancreatic enzyme secretion, cholecystokinin effects, G464
 postreceptor modulation, peptide and secretin, G423
 Ions
 cellular contents, peritubular membrane, cortical collecting tubule, F664
 composition, gentamicin nephrotoxicity, kidney cortex, F477
 exchange, inorganic phosphate effects, heart, H79
 transport
 α_1 -adrenergic receptors and, ileum, G237
 alkaliosis and acidosis effects, intestinal, G486
 bladder to kidney (toad), F103
 cholinergic regulation, colon, G116
 cortical collecting tubules, F379
 gluconeogenesis and, oxygen and sodium transport relations, F508
 kidney tubules, F254
 submaxillary duct epithelium, F132
 Iron, deficiency and repletion, muscle mitochondrial bioenergetics, E418
 Ischemia
 acrotic cardiac, energy metabolism in, computer model, R533
 acute regional, pressure effects, subepicardium and subendocardium, H240
 adenosine triphosphate-MgCl₂ treatment, R604
 albumin clearance and, intestinal mucosa, G448
 cerebral, microsphere method of measurement (gerbil), H990
 myocardial
 blood flow, dexamethasone effects, H55
 cholesterol content and membrane properties (pig), H254
 diving (seal), R97
 function during, H980
 magnesium effects, species differences (rat, rabbit), H89
 mechanical function in, newborn, H1077

nucleotide depletion after, open chest, H818
 potassium accumulation during, heart, H619
 pulmonary and coronary endothelial effects, H337
 on-line mapping, heart, H526
 sarcolemma, hydrolysis of, lysosomal lipases, H652
 sarcolemmal enzymes, sodium-calcium exchange and, C288
 Isethionate, anion permeability, proximal tubules, F395
 Isobutyl methylxanthine, adenosine monophosphate, cyclic and guanosine monophosphate, cyclic levels, fundic glands, G21
 Isochronic maps, activation sequence, atrial, H421
 Isoleucine, substrate regulation, muscle protein synthesis, E184
 Isometric contraction: *see* Muscle
 Isoproterenol
 arterial smooth muscle relaxation, coronary, H177
 blood flow, pancreatic islets, E298
 calcium uptake and, vascular smooth muscle, H797
 cardiac action potentials, low-calcium solution (frog), H827
 comparative response, developing myocardium, H13
 myocardial dysfunction, coronary stenosis and, H260
 oxygen uptake
 blood flow relations, intestinal, G202
 stomach, G565
 renin release, enhancement of, F267
 ventricular contraction and, theophylline effects, H349
 Isotonic contraction: *see* Muscle
 Isotonic secretion, intraluminal pressure effects, small intestine, G58
 Isotopes
 bone-seeking, potassium and strontium exchange, H705
 clearance, tilting effects, H161
 single-injection method, glucose lactate interrelations (penguin), R458
 Isozymes, myosin, muscle fibers, C373

J

Jejunum
 brush-border membrane, peptidases of, ethanol effects (hamster), G442
 horseradish peroxidase transport across, G558
 intestinal transport, intraluminal pressure effects, G65
 maltase and lactase, postnatal development, G89
 transcapillary fluid, protein movement and, H227
 transport properties, newborn, G308
 unstirred water layer, G364
 Junction
 atrial, stretch receptors, thirst inhibition, R452
 neuromuscular
 diltiazem effects, mesenteric artery, H325
 magnesium effects, muscle desensitization (frog), C319
 tight
 biliary secretion, liver (skate), G319
 rectal gland (shark), C388

K

Kaliuresis, angiotensin II, central, R498
 Kallikrein, immunoreactive glandular plasma, H602
 Kallikrein-kinin system, blood flow, submandibular gland, H1010
 Ketoacidosis, regulation, acid-base balance, F238
 Keto acids, binding, plasma albumin, free fatty acid effects, E67
 Ketogenesis, fasting, hydrogen ions, acid-base balance effects, F238
 α -Ketoisocaproate, binding, plasma albumin, free fatty acid effects, E67
 Ketone bodies, shivering thermogenesis, diabetes, muscle, R109
 6-Ketoprostaglandin F_{1α}, urinary excretion of, arterial blood, E171
 Kidney
 arterial constriction, renin release and, F267
 blood flow: *see* Blood flow
 brush border: *see* Brush border
 catecholamines
 production, neural and extraneuronal, F261
 uptake and excretion, F56
 cells: *see* Kidney cells
 clearance studies, chronic caval, F370
 cortex: *see* Kidney cortex
 cortical collecting duct, calcium movement across, F285
 2-deoxy-D-glucose transport, F711
 1,25-dihydroxyvitamin D₃ effects, phosphate transport (chick), C312
 epithelium, LLC-PK₁, L-lactate metabolism (pig), C41
 failure
 decreased phosphate transport, luminal membrane, F177
 gentamicin nephrotoxicity, F477
 plasma trypsinogens in, G177
 feedback effects, angiotensin II, F149
 function
 chronic unilateral denervation, awake state, F140
 exercise, R482
 glomerular filtration rate and, R303
 sodium deficit effects, growth, E241
 sodium-potassium-ATPase and, F207
 unilateral nephrectomy effects, F181
 gluconeogenesis, sodium transport and oxygen consumption relations, F508
 hemodynamics, adenosine role in, F423
 hypertension
 arterial wall changes during, H477
 interstitial fluid dynamics, awake state, H376
 vasopressin effects, F727
 juxtaglomerular cortex, adenosine role in, F423
 kallikrein, plasma, radioimmunoassay for, H602
 medulla: *see* Kidney medulla
 membrane fluidity, enzyme activities and, F246
 membrane vesicles, copper effects on urate uptake, F158
 metabolism, tissue potassium, F360
 microdissection, high-affinity calcium-magnesium-ATPase, F346
 micropipette methods, origin of, F293
 microvillus membrane vesicles, phosphate transport, F126
 nonfiltering, renal nerve modulation,

SUBJECT INDEX TO VOLUME 242

- renin secretion, R367
 organic base transport, proximal tubules, F672
 papilla: *see* Kidney papilla
 parathyroid hormone, adenylate cyclase regulation, F457
 parathyroid hormone receptors, hyperparathyroid models (chick), E154
 perfused, substrate-selective maintenance, tissue potassium, F360
 perfusion, autoregulation, F86
 phosphate transport, hypophosphatemia and, F353
 potassium transport, F297
 reduced mass, early development, F190
 remnant, water reabsorption, papillary collecting duct, F657
 response
 hypertonic saline infusion, cirrhosis, F390
 hypocalcemia, E287
 volume expansion, awake state, F649
 water deprivation, R296
 sodium and potassium transport, F514
 sodium transport, sodium-potassium-ATPase effects on, F207
 sugar transport (flounder), F415
 taurine excretion (fish), R64
 thick ascending limbs, cultured epithelia, C229
 transepithelial ion transport, urinary bladder (toad), F103
 transport, glucagon and insulin, F112
 tubules: *see* Kidney tubules
 ureteral obstruction, thromboxane B₂ and, F220
 vascular resistance: *see* Resistance
 venous prostaglandin efflux, ventilatory rate effects, F38
 weight, glomerular filtration rate and, R303
 Kidney cells
 cultured, thick ascending limbs, C229
 epithelial, peanut lectin binding, C117
 hexose transport, sodium-dependent, C94
 insulin effects, sodium transport and glucose metabolism, C121
 osmotic water permeability, proximal straight tubules, F321
 phosphate uptake, 1,25-dihydroxyvitamin D₃ effects (chick), C312
 sodium transport, corticosteroid binding effects, F610
 Kidney cortex
 adenylate cyclase, manganese ion effects on, F457
 copper effects, urate uptake, F158
 ion composition, sodium-potassium-ATPase and, gentamicin nephrotoxicity, F477
 parathyroid hormone-stimulated adenylate cyclase, epinephrine inhibition of, F721
 phosphate transport, glucose and alanine effects, F126
 Kidney medulla
 collecting duct, function, adrenal enucleation effects, F453
 collecting tubule, sodium and potassium transport, F514
 inner, hemodynamics, chronic caval, F370
 recycling, potassium, F297
 Kidney papilla
 collecting duct, water reabsorption, remnant kidney, F657
 plasma flow, tissue osmolality and, chronic caval, F370
 Kidney tubules
 acidosis, lithium effects, F23
 adaptation, phosphate restriction, hypophosphatemia, F353
 aldosterone binding, F63, F69
 calcium and electrolyte samples, disappearance of, F202
 calcium-magnesium-ATPase, high-affinity, F346
 collecting
 calcium movement across, F285
 peanut lectin binding, C117
 cortical
 luminal fluid acidification, F521
 mass, diabetes, F385
 phosphate transport, F379
 pressure in microstructures, angiotensin II, F149
 sodium and potassium transport, F514
 cortical collecting, sodium transport properties, peritubular membrane, F664
 cultured cells, thick ascending limbs, C229
 distal
 aldosterone binding, F63
 chloride transport (salamander), F331
 pH effects, potassium transport, F544
 potassium secretion, luminal chloride effects, F46
 glucagon and insulin, processing differences, F112
 inorganic phosphate handling, growth, F705
 insulin and growth hormone absorption, amino acid effects, F745
 ion transport, kidney (toad), F103
 luminal membrane, sodium-chloride entry mechanism, F561
 micropipette methods, origin of, F293
 parathyroid hormone-stimulated adenylate cyclase, epinephrine inhibition of, F721
 potassium transport, sodium-potassium-ATPase effects, F207
 proximal
 acridine orange uptake, F733
 aldosterone binding, F63
 anion permeability, F395
 bicarbonate and fluid absorption, lysine effects, F604
 carbon dioxide tension, F78
 carbonic anhydrase-independent reabsorption, F274
 cimetidine and procainamide secretion, F672
 convoluted, bicarbonate transport, F532
 convoluted, carbon dioxide permeability, F470
 cytosolic free calcium levels, C124
 2-deoxy-D-transport, F711
 fluid reabsorption, dopamine effects, F634
 fluid-to-plasma chloride concentration gradient, F575
 osmotic water permeability, F321
 phosphate transport, F126
 potassium transport, pars recta, F226
 potassium transport pathways, F297
 reabsorption, metabolic acidosis and, F499
 sodium-dependent D-glucose transport, F406
 sodium reabsorption, ethacrynic acid and ouabain effects, F254
 taurine secretion (fish), R64
 transport, folic acid and methotrexate (monkey), F484
 Kinase, myosin light chain, vascular smooth muscle (swine), C109
 Kinase isozymes, arterial smooth muscle relaxation, coronary, H177
 Kinetics: *see* specific subject and site
 Kinin, uteroplacental blood flow regulation, pregnancy, H142
 Kininase II, blood flow and, submandibular gland, H1010
- L
- Lactate
 glucose interrelations (penguin), R458
 metabolism, free water clearance and, F491
 muscle protein synthesis, E184
 pancreatectomy, mixed meal response, E335
 plasma concentration (penguin), R458
 L-Lactate, metabolism, LLC-PK₁ renal epithelia (pig), C41
 Lamina, external, barium effects, calcium paradox, H203
 Lanthanum
 catecholamine secretion, ionophore effects, adrenal gland and spleen, E137
 ionic, biliary secretion, liver (skate), G319
 permeability, tight junction, rectal gland (shark), C388
 Laparotomy
 catecholamine responses, morphine effects, E317
 renal venous prostaglandin efflux, ventilatory rate effects, F38
 Latissimus dorsi
 anterior, stretch-induced hypertrophy (chicken), C333
 posterior, contractile property development, embryo (chick), C52
 Lectin, peanut, binding, epithelial cells, kidney, C117
 Leucine
 binding, plasma albumin, free fatty acid effects, E67
 substrate regulation, muscle protein synthesis, E184
 transport, cold acclimation, liver (fish), R280
 Light, constant, circadian rhythm, dark pulse effects (hamster), R44
 Light pulses, circadian rhythm, serotonin and, eye (mollusk), R326
 Limbic system, dipsogenic effects, vasopressin, R372
 Lipase
 fasting and refeeding effects, pancreas, G215
 lysosomal, hydrolysis of sarcolemma by, H652
 Lipids
 epidermal, skin (snake), F681
 meal, duodenogastric reflux and, G603
 membrane, kidney, F246
 sarcolemma, hydrolysis of, lysosomal lipases, H652
 secretion, taurine-conjugated bile acid

- Lipids (continued)**
 effects, biliary, G40
 triacylglycerol metabolism and, diabetes, heart, H1084
- Lipophilic solutes, erythrocyte**
 permeability, temperature effects, C74
- Lipoprotein, particles, transport, small intestine**, G408
- Lipoprotein lipase, adipose, insulin-treated diabetes**, E445
- Lithium, acidification and, urinary**, F23
- Liver**
 active capacitance responses, neural and humoral stimuli, H1000
 biliary secretion determinants (skate), G319
- blood flow**
 hemorrhage effects, fetus (lamb), H543
 splanchnic hemodynamics, G156
 canalicular transport of protoporphyrin, cholesterols effects, G347
- cardiovascular depression, capsaicin injection and, H955
- chloride transport, G628
- glucagon and, insulin and hyperglycemia effects, E73
- glucose uptake, insulin effects, awake state, E97
- [³H]-25-hydroxyvitamin D₃, vitamin D depletion and, G522
- leucine transport, cold acclimation and (fish), R280
- oxygen consumption, bile flow and (skate), G313
- permeability characteristics, bile duct, G52
- potassium balance, hyperinsulinemia, E373
- stimulator substance, G281
- cell growth and, G289
- uridine regulation, artificial oxygen carrier, R465
- Load**
 dependence, relaxation during heart failure, H855
 optimum, right ventricle, H154
- Loading, relaxation, papillary muscle, H303
- Locke's solution, magnesium-free, smooth muscle contraction, arterial, C25
- Locomotor activity, dark pulse effects, circadian rhythm (hamster), R44
- Logic, neural, biological control systems, R173
- Loop, closed and open, postprandial exercise, diabetes and, E309
- Loop of Henle: *see* Henle's loop
- Luminal fluid: *see* Fluid
- Luminal membrane
p-aminohippuric acid transport, urinary bladder (rock crab), R25
 phosphate transport, kidney failure, F17
 sodium-chloride entry mechanism, kidney tubule, F561
- Lung
 development, thyroid hormones and, E378
- fluid: *see* Fluid
 lobe
 permeability, histamine effects, H565
 prostacyclin effects, H745
 lymph, myocardial ischemia and, H337
monocrotaline effects, pneumotoxicity and thrombocytopenia, H573
 noradrenergic extraction, flow dependence of, H844
- permeability: *see* Permeability
 thromboxane generation, regional blood flow, bypass (sheep), H462
- Luteinizing hormone**
 release, steroid modulation of, E164
 response, estradiol, luteinizing hormone-releasing hormone, pituitary, E392
- Luteinizing hormone-releasing hormone, active immunization against (lamb)**, E201
- Lymph**
 cardiac, myocardial ischemia and, H337
 intestinal, ischemia and oxygen radical effects, G448
 protein concentration
 venous pressure and, lymph, H1044
 venous pressure and, skin, H1038
 renal, catecholamine production, F261
 vitamin D absorption and, G326
- Lymph flow**
 capillary permeability and, intestinal, G194
 pulmonary, platelet aggregation and (sheep), H645
- Lysine, bicarbonate and fluid absorption, proximal tubules**, F604
- Lysine acetylsalicylate, calcitonin effects, insulin secretion**, E206
- Lysophosphatidylcholine, sodium-potassium-ATPase activity and, cardiac sarcolemma**, H456
- Lysosomes**
 cooling effects, adenosine triphosphate and, C192
 ethionine effects, pancreas, G297
- M**
- Macromolecular transport, pulmonary endothelium, model**, H882
- Macrovascular variables, research, gracilis muscle**, H713
- Macula densa**
 plasma renin activity, potassium-mediated, F463
 renal nerve modulation, renin secretion and, R367
- Magnesium**
 adenosine triphosphate protective action, lysosomes, C192
 catecholamine secretion, ionophore effects, adrenal gland and spleen, E137
 desensitization and, muscle (frog), C319
 gentamicin nephrotoxicity, kidney cortex, F477
 ischemia and, heart, species differences (rat, rabbit), H89
 pressor response blockade, potassium (dogfish), R185
- Magnesium ions, contraction, smooth muscle, arterial**, C25
- Malnutrition, thyroid hormones and, developing lung**, E378
- Mammary gland, rhythmic contractions, teat sphincter (cow)**, R181
- Manganese ions, parathyroid hormone receptor-adenylate cyclase system regulation, kidney**, F457
- Mannitol, cerebrospinal fluid, salt appetite and (sheep)**, R51
- D-Mannose, reabsorption, kidney (lounder)**, F415
- Mapping, on-line, cardiac**, H526
- Maturation: *see also* Development; Growth alterations in mechanical properties**
- papillary muscle, H359
- chemical, R390
- Meals: *see* Feeding**
- Mechanoreceptors: *see* Receptors**
- Mefenamic acid, blood flow and, jejunal, G140**
- Membrane: *see also* specific subject and site**
 apical rupture, compliance and permeability, bladder (toad), F8
 elaboration, ionic requirements for, oxyntic cells (frog), G388
- plasma**
 antiluminal, enzyme activities, kidney, F246
 calcium uptake, myometrium, C278
 placental microvillous, C166
- potentials: *see* Potentials**
- properties, smooth muscle cells**, pulmonary artery, H900, H907
- recycling, ethionine and, pancreas, G297
- transport**
 calcium-free strontium medium (monkey), C353
 protein, exocrine pancreas, G32
 strontium medium (monkey), C360
- Membrane channels, permeability and, skin (snake)**, F681
- Membrane vesicles, plasma, calcium uptake, myometrium**, C278
- 3-Mercaptopicolinate**
 gluconeogenesis, sodium and oxygen transport, kidney, F508
 glucose metabolism, free water clearance and, F491
- Mesenteric artery, diltiazem effects, smooth muscles and neuromuscular junction**, H325
- Mesenteric circulation: *see* Circulation**
- Metabolic clearance rate, infused gastrin, gastric response to**, G660
- Metabolic control**
 epinephrine-glucagon interaction, glucoregulation, diabetes, E428
 insulin-dependent diabetes, circadian profiles of insulin receptors, E127
- Metabolic inhibition, catecholamine secretion, ionophore effects, adrenal gland and spleen**, E137
- Metabolic rate, pulsatile pressure and, intestinal autoregulation**, H769
- Metabolic regulation, blood flow, coronary, adenosine and, conscious exercise, H24**
- Metabolic response, diabetes, postprandial exercise**, E309
- Metabolism: *see also* specific subject and site**
 ammonia, myocardial, H536
 dopamine, brain, R471
 substrate, seasonal acclimatization (goldfinch), R563
 thermal acclimation, temperature selection and (fish), R157
- Metabolites changes, stimulation and, muscle fibers, C218**
- circadian profiles, insulin receptors, E127**
- compartmentation, striated muscle, C1**
- Methotrexate, transport, kidney tubules (monkey)**, F484
- Methoxamine hydrochloride, α -adrenoceptor stimulation with, myocardial response (lamb)**, H405
- Methylene blue, histamine effects, lung and forelimb permeability**, H565

- Methylglucose, transport, ileum, fetus, G642
- Methylglucoside, sodium-dependent transport, renal cells (chick), C312
- Methylprednisolone, gluconeogenesis, sodium and oxygen transport and, kidney, F508
- Microcatheterization, adrenal enucleation, inner collecting duct function and, F453
- Microcinematography, spermatozoa, C304
- Microcirculation: *see also* Blood flow; Circulation
adenosine and, striated muscle (hamster), H688
cerebral, fatty acids and cyclooxygenase effects, H629
erythrocyte and plasma distribution, spontaneously hypertensive cremaster muscle, H381
fluid exchange, intestinal muscle, H268
intestinal fat absorption and gastrointestinal hormones, G194 model, G541
myocardial, capillary density during, H133
tetrodotoxin effects, vascular smooth muscle, H967
- Microcomputer, signal averager, spontaneous signals, H291
- Microdissection, aldosterone binding, kidney tubules, F63, F69
- Microelectrodes, ion-selective, soleus muscle, E193
- Micromorphometry, bone, parathyroid hormone effects, F197
- Microperfusion
capillary and luminal, bicarbonate effect of lysine, proximal tubule, F604
micropipette methods for, origin of, F293 potassium secretion, luminal chloride effects, kidney, F46
potassium transport, pH effects, distal tubule, F544
tubular fluid samples, electrolyte loss from, kidney, F202
- Micropipette, origin of methods, Marshall Barber, F293
- Acupuncture
angiotensin II antagonism, renal effects of, F149
carbon dioxide permeability, proximal convoluted tubule, F470
chloride gradient, proximal tubular, F575 lithium, urinary acidification, F23
micropipette methods for, origin of, F293 reduced renal mass, early development, F190
tubular fluid samples, electrolyte loss from, kidney, F202
water reabsorption, papillary collecting duct, remnant kidney, F657
- Microscopy
electron, ethionine effects, pancreas, G297
in vivo, skeletal muscle, R411
- Microspheres
acute and chronic loss, left ventricular myocardium, H392
blood flow chondroosseous, tibia and femur, H365 coronary, H94 measurement, pancreatic islets, E298 hypercapnia, cholinergic nerves during, H683
- radiolabeled blood flow, foot (chicken), R582 carbon dioxide tension, cerebral blood flow and, fetal, newborn and adult (sheep), H862 intraluminal pressure effects, intestinal, G65 myocardial infarction, H867 myocardial ischemia and function, H260 regional blood flow measurement (gerbil), H990 splanchnic hemodynamics, portal hypertension, G156 venous return, hemorrhage effects, umbilical, fetus (lamb), H543 radionuclide-labeled, oxygen consumption, intestinal, fetal (lamb), H50
- Microvascular system, functional unit, skeletal muscle, R411
- Microvascular transport, whole-body capillary transport parameters, R227
- Microvascular variables, research, gracilis muscle, H73
- Microvessels, cremaster muscle, erythrocyte and plasma distribution, spontaneously hypertension, H381
- Microvillus membrane, renal, potential-dependent D-glucose uptake, F340
- Migrating action-potential complex, fluid production absence, cholera enterotoxin B subunit and, G47
- Mineralocorticoids activity, deoxycorticosterone, adrenalectomy, E305 binding sites, kidney tubules, F63, F69 luminal fluid acidification and, kidney tubules, F521 sodium-potassium-ATPase and, kidney, F207
- Mitochondria calcium ion uptake, reoxygenation, hypoxia, myocardium, H437 calcium level, proximal tubules, C124 cholesterol content and membrane properties, myocardial ischemia (pig), H254 development, cold adaptation, brown fat, C159 energy metabolism and, myocardium, F699 muscle, bioenergetics, dietary iron deficiency and repletion, E418 oxygen metabolism, cerebral cortex (gerbil), C265
- Mitochondrial membrane, cholesterol content, myocardial ischemia (pig), H254
- Mitral valve, fluid dynamics in, model, H1095
- Mitral valve prolapse syndrome, mathematical model, H1095
- Models
bone loss, postmenopausal and osteoporotic women, E82 branched elastic transparent vessels, H122 butyrate effects, ouabain-sensitive respiration, brown adipocytes (hamster), C46 cardiac performance, atrial pacemaker activity, H98 cardiovascular reflexes, liver, H955 chloride self-exchange, skeletal muscle (toad), C207
- chronic reduction, blood flow, uterine, pregnancy (sheep), H297 circulatory mechanoreceptors (turtle), R216 colloid osmotic pressure, hindlimb, H512 computer, acidotic cardiac ischemia, R533 cross-bridge cycling, smooth muscle, arterial (swine), C102 equilibrium equations, myocardial stress, H875 equivalent circuit, prolactin effects, chloride secretion by opercular membrane, R380 functional unit concept, skeletal muscle, R411 D-glucose transport, sodium-independent, kidney, F340 hyperparathyroid animals, parathyroid hormone receptors in, renal (chick), E154 intraluminal pressure, intestinal transport and, G58 kidney perfusion, autoregulation, F86 limits of, reflexivity in nature, R167 macromolecular transport, lung endothelium, H882 mathematical body temperature and daily activity, R1 fluid dynamics, mitral valve, H1095 human circadian system, R3, R17, R22 whole-body capillary transport parameters, R227 mesenteric circulation, G541 on-line mapping, heart, H526 oxygen metabolism, cerebral, C265 parameter and structural identifiability concepts, R421 parathyroid gland, epinephrine effects (calf), R151 parathyroid hormone secretion, metabolism and (calf), R141 pharmacokinetics, brain, R339 positron-emitting tracers, beta probe, H62 pressure signal multiplexer, H288 regression lines, unequal slopes and, R178 rhythmic contractions, teat sphincter (cow), R181 sarcomere length control, striated muscle, H411 measurement, cardiac cells, H68 severe obesity, dietary-induced, R212 signal averager, spontaneous signals, H291 smooth muscle behavior, controlled stretches, C146 splenic afferents, reflex responses, R247 tissue volume change, monitoring device, H698 transcapillary exchange, molecular weight markers, postglomerular circulation, F436 transcapillary fluid, protein movement and, H227 wound, γ -carrageenan-induced, perfused hindlimb, R570
- Monensin, proton uptake, secretory granules, pancreatic β -cells, C382
- Monocrotaline membrane properties, smooth muscle cells, pulmonary hypertension, H907 single injection, pneumotoxicity and thrombocytopenia, H573

- Monokine, hyperinsulinemia, reticuloendothelial system phagocytosis, E115
- Morphine catecholamine responses and, laparotomy and 2-deoxyglucose, E317
- migrating myoelectric complexes and, G588
- Motility gastric after pyloromy, G9 emptying pattern, G333 glycoprotein receptor system and, G429 intestinal, glycemia oscillations and (pig), G15 small intestine, heat-stable toxin effects, G360 sperm, epididymis, R199
- Motor nerve, activity-induced enzymatic adaptation and, skeletal muscle, C272
- Mucociliary frequency, palate epithelium (frog), C31
- Mucociliary transport, palate epithelium (frog), C31
- Mucosa: *see* specific subject and site
- Mucus, transport frequency, palate epithelium (frog), C31
- Multiplexer, pressure signal, single oscilloscope channel, H288
- Muscarinic agonists, cholinergic regulation, electrolyte transport, colon, G116
- Muscle atrophy, insulin resistance for glucose metabolism, E12 contraction dystrophic (chicken), C19 glycogen and (roundworm), R514 glycogenolysis control, exercise, E25 mechanism of, C146 smooth muscle cell receptors, G400 creatine kinase release, osmotic changes and (frog), C398 desensitization, magnesium effects (frog), C319 disease, contraction and (chicken), C19 energetics, Fenn effect, H1 energy utilization, different sarcomere and A-band lengths (horseshoe crab), R394 enzymes, diet and flight (bat), R189 fast-twitch, contractile property development, embryo (chick), C52 fatigue, prolonged exercise, C65 fiber transformation, intermittent stimulation, C373 fuel utilization (bat), R189 glucose uptake, shivering thermogenesis and, diabetes, R109 hindlimb, insulin effects, adrenalectomy and fasting, E323 intestinal, fluid exchange across single capillaries, H268 isometric contraction energy utilization (horseshoe crab), R394 myosin phosphorylation, C234 isotonic and isometric contractions, Fenn effect, H1 layers, portal vein, responsiveness of, G498 length, relaxation, H303 metabolism, oxygen, esophageal (opossum, cat), G258
- mitochondrial bioenergetics, dietary iron deficiency and repletion, E418 properties, thyroid hormone action, R401 protein exclusion, increased venous pressure and, H1044 reproductive, behavior during stretch, C146 stretch-induced growth, wing (chicken), C178 striated adenosine and exercise hyperemia (hamster), H688 sarcomere length control in, H411 vascular, portal vein, responsiveness of, G498
- Muscle, heart aging, H927 contractility diabetes-induced inhibition, insulin effects, H490 hypertensive hypertrophy and, H882 indices, endotoxic shock, H172 contraction inorganic phosphate effects, H79 theophylline inhibition of, H349 contraction force, maturation, H359 energetics, Fenn effect, H1 fluid dynamics, mathematical model, H1095 inotropic effects, α -adrenoceptor stimulation (lamb), H405 inotropy, aortic insufficiency and, H973 loading determinants, relaxation, H303 mechanics maturation, H359 sarcomere length control, H411 phosphorus nuclear magnetic resonance spectroscopy, H729 relaxation, loading determinants of, H303 sarcomere length measurement, cardiac cells, H68
- Muscle, skeletal arginine metabolism, urea synthesis and, E87 chloride self-exchange (toad), C207 contractile properties development, embryo (chick), C52 surgical overload, C259 contraction, 2-n-butyl-methylenedioxindene effects (frog), C347 creatine kinase release, osmotic changes and (frog), C398 energetics, Fenn effect, H1 enzymatic adaptation, motor nerve and, C272 fatigue, prolonged exercise, C65 fibers, hyperpolarization of, potassium-free media, C12 functional unit, R411 glucose uptake, shivering thermogenesis and, diabetes, R109 insulin resistance, glucose metabolism, E12 stimulation, sodium and potassium activities during, E193 isometric contraction, dystrophy (chicken), C19 leucine metabolism, exercise effects, E407 mechanics and energetics, 2-n-butyl-methylenedioxindene effects (frog), C347 metabolism, intracellular pH effects (frog), C87
- myosin, light chain phosphorylation-dephosphorylation, C234 phosphorus nuclear magnetic resonance spectroscopy, H729 regression, stretch-induced hypertrophy, wing (chicken), C333 structure and metabolism, age and feeding effects, R89 tilting effects, H161
- Muscle, smooth arterial contraction, magnesium ion induced, C25 tonic force maintenance in (swine), C102
- arterial coronary, protein kinase in, H177 behavior, controlled stretches, C146 calcium uptake, myometrium, C278 contractions, force potential, tracheal, C283 depolarization-induced contractile activity, calcium-free solution, C36 diltiazem effects, mesenteric artery, H325 esophageal, oxygen uptake (opossum, cat), G258 gastric, ethyl alcohol effects, G222 pulmonary, impedance, blood volume effects, H197 pulmonary vascular, mechanics and composition, H245 rhythmic contractions, teat sphincter (cow), R181 tracheal, maximum force potential, C283 vascular adenosine triphosphate effects, sarcoplasmic reticulum, C242 calcium uptake, adenosine effects, H797 cell sodium components, H751 membrane potentials, tetrodotoxin effects, H967 myosin light chain phosphorylation in (swine), C109 protein kinase in, H177
- Muscle cells skeletal, arginine metabolism and urea synthesis, E87 smooth membrane properties, pulmonary artery, H900, H907 receptor characterization, G400
- Muscle fibers fast-twitch, oxidative, intermittent stimulation, C373 metabolite changes, during stimulation, C218 type IIB to IIA, transformation, intermittent stimulation, C373 types, thyroid hormone action, R401
- Muscular dystrophy, stretch-induced growth effects, wing muscle (chicken), C178
- Myocardial cells: *see also* Cardiac cells; Heart cells defibrillator-induced damage, safety factor for, H662
- Myocardial infarction: *see* Infarction
- Myocardium α -adrenoceptor stimulation and, methoxamine hydrochloride (lamb), H405 age changes, inotropic agent effects, H13 aging, review of, H927

SUBJECT INDEX TO VOLUME 242

ammonia, extraction and clearance, H536
 contractile behavior, hypertensive hypertrophy, H882
 depression, endotoxic shock, H172
 diastolic stiffness, left ventricular hypertrophy, H633
 excitation-contraction coupling, neonatal, H834
 extracellular marker, cobaltic EDTA, H671
 function, ischemia effects, newborn, H1077
 function and metabolism, coronary artery occlusion and, H980
 hypoxia, reoxygenation after, tissue calcium ion exchange and, H437
 impaired energy metabolism, phosphate depletion and, F699
 infarct size, risk area and, relations, H867
 ischemia: *see* Ischemia
 isoproterenol-induced dysfunction, coronary stenosis and, H260
 left ventricular, microsphere loss from, H392
 metabolism
 diving, (seal), R97
 positron-emitting tracers, H62
 nucleotide depletion, brief ischemia, open chest, H818
 oxygen
 delivery, adrenergic control of, exercise, awake state, H805
 extraction, aortic constriction and, H310
 performance, maturation, papillary muscle, H359
 preservation, magnesium effects, ischemia, species differences (rat, rabbit), H89
 pyruvate oxidation, energy-linked changes, adrenergic stimulation (guinea pig), H30
 radiotracer kinetics, regional, H849
 stress, estimation of, H875
 timed plasma staining, capillary density during, H133

Myocytes
 cardiac, sodium-potassium-ATPase activity, fatty acid effects, H456
 contracture, anaerobic to aerobic transition and, H1022

Myoelectric activity
 heat-stable toxin effects, small intestine, G360
 spike bursts, minute rhythm of, small intestine, species differences, G654

Myoelectric complex
 activity, cholera toxin B subunit and, G47
 blood sugar oscillations and, duodenal (pig), G15
 migrating, morphine effects, G588

Myofibrils
 phosphate depletion, energy metabolism and, myocardium, F699
 prolonged exercise, muscle fatigue and, C65

Myogenesis, contractile property development, embryo (chick), C52

Myogenic response, calcium-dependent contractile activation, cerebral artery, H760

Myoglobin, oxygenation, coronary artery occlusion, H980

Myometrium, calcium uptake, plasma membrane, C278

Myosin
 electrophoretic patterns, fiber transformation, muscle, C373
 light chain
 phosphorylation, calcium ions and, smooth muscle (swine), C109
 phosphorylation-dephosphorylation, skeletal muscle, C234
 thyroid hormone action, muscle, R401

N

Naloxone, morphine effects and, catecholamine responses, E317
 Nanoliter samples, acid-base titration, glass and antimony electrodes, F95

Natriuresis
 aldosterone effects, hypertonic infusions, F30
 angiotensin II, central, R498
 denervation, kidney, awake state, F140
 volume expansion and, renal (monkey), F649

Natriuretic hormone, sodium-potassium-ATPase and, kidney, F207

Neck, suction, carotid baroreceptor stimuli, H638

Necrosis, cellular, ethionine effects, pancreas, G296

Neonate: *see also* Newborn
 chondroosseous circulation, tibia and femur, H365
 endocrine responses, arterial hypotension (sheep), E215
 excitation-contraction coupling, myocardial, H834

Neostigmine, presynaptic receptors, neuromuscular transmission and, C366

Nephrectomy
 plasma trypsinogens in, G177
 unilateral, kidney function changes after, F181
 uteroplacental blood flow, pregnancy, H142

Nephron
 aldosterone binding, tubules, F63, F69
 calcium-magnesium-ATPase, high-affinity, F346
 heterogeneity, potassium transport, pars recta, F226
 obstruction, altered glomerular hemodynamics, F580
 superficial, reduced renal mass in early development, F190

Nephrotoxicity, gentamicin, ion composition and, renal cortex, F477

Nerve, traffic, circulatory mechanoreceptors (turtle), R216

Nerves: *see* specific nerve and site

Neural control, reflex cardiovascular changes, veratridine and, awake state, H810

Neural factors, renin response, graded renal nerve stimulation, R552

Neuroendocrine control, sodium balance (fiddler crab), R505

Neurogenic mechanisms, interaction, desoxycorticosterone and salt hypertension, H37

Neurohypophysis, vasopressin effects, fetal (lamb), F740

Neuromuscular junction: *see* Junction

Neuromuscular transmission
 diamide effects (lobster), C59
 diltiazem effects, mesenteric artery, H325
 presynaptic receptors and, C366

Neurons
 adrenal medulla, epinephrine uptake, H593
 hypothalamic, activity patterns, sympathetic nerve discharge and, R34
 peripheral neural input, stellate ganglion, R237

Neuropeptide, gastric ulcers, stress-induced, G342

Neurotensin, centrally administered, cytoprotective effects, gastric ulcers, G342

Neurotransmitters, epinephrine, adrenal medulla, H593

Neutron, activation analysis, bone loss, women, E82

Newborn: *see also* Neonate
 carbon dioxide tension, cerebral blood flow and (sheep), H862
 homeostasis, vasopressin effects (lamb), F740
 ischemia effects, myocardium, H1077
 tryptophan effects, transport properties, jejunum, G308

Nicotinamide, parathyroid hormone, calcitonin and, phosphate deprivation, F447

Nicotinamide adenine dinucleotide, fluorescence, hormone effects, hepatocytes, C172

Nigericin, acridine orange uptake and, brush border vesicles, renal, F733

Nitrogen
 chemical maturation, R390
 metabolism, blood (seal), R85

Nitrous oxide, amino acid supply and, brain, E1

Nonelectrolytes, permeability, bile duct, G52

Noninvasive measurement, blood pressure (swine), H127

Nonlinear control theory
 parathyroid gland response, epinephrine (calf), R151
 parathyroid hormone secretion (calf), R141

Norepinephrine
 blood flow, pancreatic islets, E298
 calcium uptake and, vascular smooth muscle, H797
 cardiomyopathic injury, ventricular function after, H191
 extraction, flow dependence of, lung, H844
 glucose metabolism, free water clearance and, F491
 immunoregulation, sympathetic nervous system and, R30

intracerebroventricular, free fatty acid mobilization after, E248

oxygenation regulation, intestinal, G435
 production, neural and extraneuronal, kidney, F261

pyruvate oxidation, adrenergic stimulation, myocardial (guinea pig), H30

regulation of level of, synaptic cleft, vascular tissue, H233

release, 2-deoxy-D-glucose and insulin

Norepinephrine (*continued*)
 effects, hypothalamus, R596
 respiration, butyrate effects, brown adipocytes (hamster), C46
 responses, morphine effects and, E317
 sensitivity, cold acclimation, brown fat cells, C250
 steroid modulation, luteinizing hormone release, E164
 turnover, reduced, brown fat, E253
 uptake and excretion, kidney, F56
 vasopressin and neurogenic mechanism interaction, hypertension, H37
 Nucleic acid, stretch-induced growth, wing muscle (chicken), C178
 Nucleotides
 depletion, myocardial, brief ischemia, open chest, H818
 regulatory site, cortical adenylate cyclase, renal, F457
 Nucleotides, cyclic
 arterial smooth muscle relaxation, coronary, H177
 cholecystokinin agonists, interaction with cholecystokinin receptors, G161
 heat-stable toxin effects, small intestine, G360
 Nutrients, motility and, spermatozoa, C304
 Nutrition: *see Feeding*

O

Obesity
 cholecystokinin effects, pancreatic exocrine response, G612
 dietary-induced, model, R212
 fasting ketogenesis regulation, acid-base balance, F238
 genetic, swim training effects, R204
 hyperplasia, cafeteria feeding and, R349
 hypothalamic lesion and, adipose cellularity development, R311
 insulin effects, fat and protein deposition, diabetes, E19
 insulin-treated diabetes, adipose lipoprotein lipase and, E445
 lateral hypothalamic lesion and, diet and adipose cellularity, E437
 plasma and pancreatic insulin development, fetus and suckling, E220
 Oligomycin
 cardiac function and, H79
 chemoreceptor response and, carotid body, C200
 Oligopeptides: *see also Peptides; Polypeptides*
 stimulation, gastric acid secretion, G85
 O-Methylation, flow dependence, lung, H844
 Omohyoideus mass, lateral, age and feeding effects, skeletal muscle, R89
 Oncotic pressure: *see Pressure*
 Ontogeny, insulin receptors, lung, fetal, E384
 Open-loop gain: *see Gain*
 Opercular membrane, chloride secretion and, prolactin effects, R380
 Organic anions, secretory system, kidney tubules (monkey), F484
 Organic bases, transport, proximal tubules, F672
 Ornithine, production, erythrocytes, C393
 Oscillators
 interacting, human circadian system, model, R3, R17, R22
 relaxation, morphine effects, G588

Oscilloscope, single channel, pressure signal multiplexer, H288
 Osmolality
 angiotensin II, central, R498
 bath, water permeability, epithelial tissue (frog), C184
 exercise effects, R482
 plasma
 ethanol effects, R522
 vasopressin role in, fetal (lamb), F740
 steady-state exercise hyperemia, H949
 tissue, papillary, chronic caval, F370
 vasopressin secretion and, streptozotocin diabetes, E411
 water deprivation and, R296
 Osmolarity, sarcomere length measurement, cardiac cells, H68
 Osmoreceptors: *see Receptors*
 Osmoregulation
 dipsogenic effects of vasopressin, central, R372
 sodium balance (fiddler crab), R505
 Osmosis
 nonlinear, bath osmolality effects, epithelial tissue (frog), C184
 reverse, skin (snake), F681
 Osmotic changes, creatine kinase release, muscle (frog), C398
 Osmotic shock: *see Shock*
 Osmotic transient data, whole-body capillary transport parameters, R227
 Osteogenesis, chondroosseous blood flow, regional, H365
 Osteoid, parathyroid hormone effects, F197
 Osteopenia, bone loss in, women, E82
 Ouabain
 glucose effects, Ehrlich cells, C326
 luminal fluid acidification and, kidney tubules, F521
 membrane properties, smooth muscle cells, pulmonary artery, H900
 phosphate transport and, cortical collecting tubules, F379
 potassium transport and, descending colon, C81
 respiration, butyrate effects, brown adipocytes (hamster), C46
 sodium and potassium transport, kidney tubules, F514
 sodium-chloride symport and, stomach (frog), G620
 sodium reabsorption and, kidney tubules, F254
 specialized cell function and, urinary bladder (turtle), F627
 taurine secretion and, kidney (fish), R64
 thermodynamic analysis, corneal epithelium (frog), F690
 Ovariectomy, theophylline-estrogen interaction, uterus, E121
 Ovary
 body weight regulation, hypothalamic damage, R265
 estrogen-theophylline interaction and, uterus, E121
 Oxidation
 leucine metabolism and, exercise effects, E407
 pyruvate, adrenergic stimulation, perfused heart (guinea pig), H30
 β -Oxidation, muscle enzymes, diet, flight and (bat), R189
 Oxidative capacity, motor nerve, skeletal muscle, C272
 Oxidative phosphorylation
 chemoreceptor response and, carotid body, C200
 muscle, dietary iron effects, E418
 uncoupling, glucose inhibition, ulceration, G429
 Oxonic acid, urate uptake and, kidney cortex, F158
 Oxyanions, anion permeability, proximal tubules, F395
 Oxygen
 artificial carrier, uridine regulation, liver, R465
 blood, postnatal regulation of erythrocytes, H500
 carotid body chemoreceptor response to, oligomycin effects, C200
 consumption
 age and feeding effects, skeletal muscle, R89
 bile flow and, liver (skate), G313
 brown fat cells, cold acclimation, C250
 capillary recruitment and, G435
 cerebral, carbon dioxide tension and, fetal, newborn and adult (sheep), H862
 diving (beaver, nutria), R434
 ethacrynic acid and ouabain effects, kidney, F254
 gluconeogenesis and sodium transport relations, kidney, F508
 growth and, embryonic (albatross), R121
 hormone effects, hepatocytes, C172
 intestinal, exchange vessels and, G570
 intestinal, fetal (lamb), H50
 myocardial, adenosine and, exercise, H24
 potassium and osmolality effects, H949
 pressure load vs. volume load, heart, H942
 pulsatile pressure and metabolic rate effects, intestinal, H769
 thermodynamics of, corneal epithelium (frog), F690
 delivery
 adrenergic control of, myocardium, exercise, awake state, H805
 consumption and, cerebral cortex (gerbil), C265
 postnatal regulation of, erythrocyte metabolism, H500
 umbilical, hemorrhage effects, fetus (lamb), H543
 dietary component effects, intestinal, G27
 extraction
 circulation and, pancreas, G596
 myocardial, aortic constriction and, H310
 myocardial, hypoxemia, fetus (sheep), H657
 paradox, heart cell contracture and, H1022
 radicals, albumin clearance and, intestinal mucosa, G448
 supply
 cremaster muscle (hamster), H211
 muscle, dietary iron effects, E418
 uptake
 blood flow relations, intestinal, G202
 epinephrine effects, muscle, E25
 esophageal smooth muscle (opossum, cat), G258
 pentagastrin-stimulated stomach, G565
 Oxygenation
 intestinal
 exchange vessels in, G570
 fetal (lamb), H50

SUBJECT INDEX TO VOLUME 242

- regulation, capillary recruitment and, G435
- myocardial, hypoxemia and, fetus (sheep), H657
- Oxymetazoline, renin release and, carotid sinus, R318
- Oxyntic cells, hydrogen ion secretion, membrane elaboration and, ionic requirements (frog), G388
- Oxyntic gland, mucosal gastrin receptors, G243
- P**
- Pacemaker activity, atrial, H98
- ventricular, epinephrine effects, H677
- Palmitate, ¹¹C-labeled, positron-emitting tracers, myocardial metabolism, H62
- Pancreas blood flow, intrinsic regulation, G596
- α -cells, dietary modulation of, G354
- dispersed acini, Gila monster venom effects, G470
- endocrine, cold acclimation in, E360
- enzymes and secretagogue responsiveness, fasting effects, G215
- enzyme secretion
- cholecystokinin effects, G416
 - cholecystokinin-induced restricted stimulation of, G464
- ethionine effects, G297
- exocrine
- cholecystokinin receptors, biological function and, G250
 - flow dependence of protein secretion, G32
 - response, cholecystokinin, obesity and, G612
- hyperinsulinemia, reticuloendothelial system phagocytosis, E115
- insulin, development of, fetus and suckling, E220
- insulin secretion, cold acclimation and, E360
- kallikrein, plasma, radioimmunoassay for, H602
- plasma insulin levels, nutritional state effects (monkey), R255
- plasma trypsinogens, renal failure and nephrectomy, G177
- secretion, acid-induced, protein digests of, G634
- Pancreatectomy, insulin deprivation and, mixed meal responses, E335
- Pancreatic acinar cells
- parotid, adrenoceptor agonist effects, G481
 - secretion, sodium and calcium transmembrane movement, G513
- Pancreatic acini
- arachidonic acid metabolism, amylase secretion and, G493
 - biological functions in, cholecystokinin receptors and, G250
 - dispersed
 - cholecystokinin effects, obesity and, G612
 - Gila monster venom effects, G470
 - enzyme secretion, cholecystokinin effects, G416
 - peptides and secretion, phosphodiesterase inhibitor effects, G547
 - postreceptor modulation, peptide and secretin, G423
 - secretion, stimulation of, cytosolic calcium and sodium, G513
- Pancreatic α -cells, volume and function, dietary modulation of, G354
- Pancreatic β -cells
- calcium ion influx into, E59
 - electrical activity, sodium effects, C296
 - secretory granules of, protein uptake, glucose-induced, C382
- Pancreatic enzymes
- peptide and secretin effects, postreceptor modulation of, G423
 - secretagogue responsiveness and, fasting and refeeding effects, G215
 - secretion
 - arachidonic acid metabolism and, G493
 - cholecystokinin-induced restricted stimulation of, G464
- Gila monster venom effects, G470
- Pancreatic islets, blood flow, measurement of, E298
- Pancreatitis, ethionine effects, pancreas, G297
- Papillary muscle: see Muscle, heart
- Paraffin oil, tubular fluid samples, electrolyte loss from, kidney, F202
- Parameter, estimation, compartmental model, R421
- Parasympathetic nervous system
- sinus node response, carotid baroreceptor stimuli, H638
 - transients, baroreflex modulation, H185
- Parasympathetic stimulation, goblet cell secretion and, intestinal, G370
- Parathyroid glands
- calcium uptake and, bone, E146
 - epinephrine effects, rate-sensitivity mechanism (calf), R151
- Parathyroid hormones
- absorption, chlorothiazide effects, intestines, G575
 - adenylate cyclase, epinephrine inhibition, renal cortex, F721
 - calcium homeostasis, streptozocin-induced diabetes mellitus, E451
 - immunoreactive, hypocalcemia and, E287
 - long-term infusion, bone and, F197
 - nicotinamide effects, phosphate deprivation, F447
 - phosphate transport and cortical collecting tubules, F379
 - renal cells (chick), C312
- receptor-adenylate cyclase system regulation, kidney, F457
- renal, receptors in (chick), E154
- secretion, metabolism and (calf), R141
- sensitivity, ammonium chloride and, F552
- tubular handling of inorganic phosphate, growth, F705
- Parietal cells
- gastric glands, gastrin stimulation of, G504
 - prostaglandin-histamine interaction, fundic glands, G21
- Parotid saliva, protein composition, physiological factors, G231
- Pars recta, potassium transport, F226, F297
- Particles, binding and internalization, macrophage phagocytosis, C339
- Pentagastrin
- gastric mucosal cell proliferation and, development, G135
 - infused, gastric response kinetics, G60
 - sensitivity, biphasic development, stomach, G111
 - stimulation, oxygen uptake and,
- stomach, G565
- Pentobarbital
- amino acid supply and, brain, E1
 - morphine effects and, catecholamine responses, E317
- Pepsin, infused gastrin, gastric response to, G660
- Peptidases, ethanol effects, jejunal brush-border membrane (hamster), G442
- Peptides: see also Oligopeptides; Polypeptides
- gastric inhibitory, bicarbonate transport and (bullfrog), G100
 - stimulation, gastric acid secretion, G85
 - vasoactive intestinal bicarbonate transport and (bullfrog), G100
 - cholecystokinin effects, G464
 - Gila monster venom effects, G470
 - pancreatic enzyme secretion and, G423
 - phosphodiesterase inhibitor effects, pancreatic acini, G547
- Percoll, motility measurement, spermatozoa, C304
- Perfluorochemical emulsion, isolated working heart, H485
- Perfusion
- constant-flow, monitoring device, tissue volume, H698
 - free-flow, intestinal, G202
 - glomerular, methodologic considerations, F1
 - prolactin secretion, pituitary, autoregulation of, E226
 - push-pull, norepinephrine release, hypothalamus, R596
- Peritubular membrane, sodium transport properties, cortical collecting tubule, F664
- Permeability
- anion, proximal tubule, F395
 - bile duct, G52
 - calcium
 - barium effects, H203
 - ischemic heart, C288
 - kidney cortical collecting duct, F285 - carbon dioxide, proximal convoluted tubule, F470
 - channel structure and, skin (snake), F681
 - drugs, brain and cerebrospinal fluid, R339
 - erythrocyte membrane, lipophilic solutes, temperature effects, C74
 - intestinal, intraluminal pressure effects, G65
 - intestinal capillaries, fat absorption and gastrointestinal hormones, G194
 - ion, smooth muscle cells, pulmonary hypertension, H907
 - ionic, insulin stimulation, soleus muscle, E193
 - potassium, pancreatic β -cells, C296
 - protein, histamine effects, lung and forelimb, H565
 - pulmonary endothelial, platelet aggregation and (sheep), H645
 - sodium, pancreatic β -cells, C296
 - vascular, myocardial ischemia and, H337
 - water
 - bath osmolality effects, epithelial tissue (frog), C184
 - compliance and, bladder, stretch (toad), F8
 - proximal tubular cells, F321
- pH
- brain, ventral medulla, R195
 - carbon dioxide permeability, proximal

pH (*continued*)
 convoluted tubule, F470
 catecholamine secretion, ionophore effects, adrenal gland and spleen, E137
 chemoreceptor response and, carotid body, C200
 gastric, pentagastrin sensitivity, G111
 intracellular insulin action and, glycolysis, skeletal muscle (frog), C87
 sodium-bicarbonate effects, F586
 plasma potassium concentration and, renal, F599
 potassium transport and, distal tubule, F544
 venous efflux of prostaglandins and, F38
 ventilatory rate effects, F38

Phagocytosis
 macrophage, particle binding and internalization, C339
 reticuloendothelial system, mechanism of hyperinsulinemia after, E115

Pharmacokinetics, urea, brain and cerebrospinal fluid, R339

Phase-response curves
 circadian rhythm
 dark pulse effects (hamster), R44
 serotonin and, eye (mollusk), R326

Phase shifting, serotonin and, rhythm, eye (mollusk), R333

Phasic responses, glucagon effects, cardiac chronotropic response, H7

Phenformin, lactic acidosis, sodium-bicarbonate effects, F586

Phenoxybenzamine, renin secretion, α -adrenoceptors and, renal, F620

Phentolamine
 α -adrenoceptor stimulation, myocardial response (lamb), H405
 cephalic phase insulin release, sham feeding-induced, E280
 intracerebroventricular norepinephrine and, free fatty acid mobilization, E248
 oxygen delivery and, myocardium, exercise, awake state, H805
 pacemakers, ventricular, H677
 pressor response blockade, potassium (dogfish), R185
 renin release and, graded renal nerve stimulation, R552
 renin secretion, α -adrenoceptors and, renal, F620

Phenylalanine, acid-induced pancreatic secretion and, protein digests, G634

Phenylbutazone, ulcer, glucose effects, G429

Phenylephrine
 brain temperature, corneal convection and (pigeon), R577
 diabetes-induced inhibition of contractility and, heart, H490
 pressor response to, desoxycorticosterone-salt hypertension, H44

Phloridzin, phosphate transport, microvillus membrane vesicles, kidney, F126

Phlorizin
 binding, proximal tubules, F406
 2-deoxy-D-glucose transport and, kidney, F711

Phosphatase, myosin light chain, vascular smooth muscle (swine), C109

Phosphate
 depletion, energy metabolism and, myocardium, F699
 deprivation, nicotinamide effects, F447
 excretion, urinary, hypocalcemia and, E287
 high-energy, ischemia effects, myocardium, newborn, H1077
 homeostasis, brush-border membrane, duodenal, M533
 inorganic: *see* Inorganic phosphate restriction, hypophosphatemia, kidney tubules, F353
 transport
 cortical collecting tubules, F379
 luminal membrane, kidney failure, F17
 microvillus membrane vesicles, kidney, F126
 tubular handling, growth, F705
 uptake, 1,25-dihydroxyvitamin D₃ effects, renal cells (chick), C312

Phosphatemia, phosphate restriction, kidney tubules, F353

Phosphaturia, ammonium chloride, acidemia role, F552

Phosphocreatine
 muscle, metabolite changes during stimulation, C218
 substrate regulation, muscle protein synthesis, E184

Phosphodiesterase
 cold acclimation, brown fat cells, C250
 cyclic nucleotide, inhibitors, peptides and secretin and, pancreatic acini, G547

Phosphofructokinase, metabolism, seasonal acclimatization (goldfinch), R563

Phospholipase A
 intestinal, triglyceride lipase and, fasting effects, G168
 sarcolemma, hydrolysis of, H652

Phospholipids
 biliary, bile acid effects, G40
 lung development, thyroid hormones and, E378
 sodium-calcium exchange and, ischemic heart, C288

Phosphorous nuclear magnetic resonance spectroscopy: *see* Spectroscopy

Phosphorus, gentamicin nephrotoxicity, kidney cortex, F477

Phosphorylarginine, utilization, muscle (horseshoe crab), R394

Phosphorylase
 epinephrine effects, muscle, exercise, E25
 metabolism, muscle contraction and (roundworm), R514

Phosphorylase phosphatase, glycogen metabolism, hepatocytes, E262

Physalaemin, pancreatic enzyme secretion, cholecystokinin effects, G464

Physiological factors, protein composition, parotid saliva, G231

Physiological mechanisms, thirst (monkey), R423

Pilocarpine, goblet cell secretion and, intestinal, G370

Pineal gland, dark pulse effects, circadian rhythm (hamster), R44

Pinocytosis, binding and internalization, particles, C339

Pituitary gland
 luteinizing hormone-releasing hormone, estradiol effects, E392
 prolactin secretion, autoregulation of, E226

responses, arterial hypotension (sheep), E215

vasopressin content, spontaneous hypertension, H496

Placenta: *see also* Fetus; Pregnancy calcium-binding protein regulation, E47 microvillus plasma membranes, D-glucose transport reconstitution, C166 term, 17 β - and 1 α -hydroxysteroid dehydrogenases in cytosol, E178 transfer, uterine blood flow and (ewe), H429

Plasma
 clearance: *see* Clearance constituents: *see* specific constituent distribution, spontaneously hypertensive cremaster muscle, H381 electrolytes: *see* Electrolytes flow: *see* Flow membrane: *see* Membrane osmolality: *see* Osmolality timed staining, capillary density, myocardium, H133

Platelets
 aggregation
 adenosine diphosphate-induced, lung fluid balance and (sheep), H645 verapamil effects, H19 prostacyclin effects, lung lobes, H745

Pllethysmography, tissue volume change, monitoring device, H698

Pneumotoxicity, monocrotaline and, H573

Polypeptides: *see also* Oligopeptides;
 Peptides
 gastric inhibitory amino acids and, insulin release (foxhound), E53 arginine interaction, insulin release and, E343 vasoactive intestinal fluorescence and oxygen consumption changes, hepatocytes, C172 glycogen metabolism and, hepatocytes, E262

Portal vein, muscle layers, responsiveness of, G498

Positive end-expiratory pressure: *see* Pressure

Postextrasystolic potentiation, excitation-contraction coupling, myocardial, neonatal, H834

Postmenopause, bone loss in, women, E82

Posttetanic potentiation, myosin phosphorylation, skeletal muscle, C234

Posture
 tilting effects
 adipose tissue vascular resistance, H161 blood pressure and interstitial pressure (fish), R70

Potassium
 absorption, colon, G209 active transport, thermodynamics of, corneal epithelium (frog), F690 calcium ion influx and, pancreatic β -cell, E59 contracture, diabetes-induced inhibition, heart, H490 deficiency, bicarbonate transport and, kidney tubules, F532 depolarization, ionophore effects, adrenal gland and spleen, E137 exchange, skeletal muscle (toad), C207

- excretion
 adrenal enucleation effects, kidney, F453
 deoxycorticosterone and, adrenalectomy, E305
 renal, plasma potassium concentration relations, F599
 water deprivation and, R296
- extracellular accumulation, myocardial ischemia, heart, H619
- gentamicin nephrotoxicity, kidney cortex, F477
- homeostasis
 extrarenal, adrenal hormones and, F641
 hyperinsulinemia, E373
 infusion effects, plasma renin activity and, F463
 inorganic phosphate effects, cardiac function, H79
- permeability: *see Permeability*
- plasma concentration, renal potassium excretion relations, F599
- pressor response to, magnesium and phenolamine blockade (dogfish), R185
- secretion, luminal chloride effects, kidney, F46
- smooth muscle contracture, arterial, C25
- sodium-dependent secretion, colon, G209
- steady-state exercise hyperemia, H949
- strontium exchange, bone, H705
- tissue, substrate-selective maintenance, perfused kidney, F360
- transport
 amiloride effects, tissues and cells, C131
 descending colon, C81
 medullary collecting tubule, F514
 pars recta, F226
 pathways, kidney, F297
 pH effects, distal tubule, F544
 sodium-potassium-ATPase effects, renal, F207
- Potassium-chloride, cotransport, skeletal muscle (toad), C207
- Potassium cyanide, biliary secretion, liver (skate), G319
- Potassium-free media, hyperpolarization, skeletal muscle fibers, C12
- Potassium-hydrogen exchange, submaxillary duct epithelium, F132
- Potassium ions
 arrest, carnitine transport, heart, H585
 intracellular, insulin stimulation and, soleus muscle, E193
 membrane properties, smooth muscle cells, pulmonary artery, H900
 transport, pars recta, F226
- Potassium-*p*-nitrophenylphosphatase, sodium-calcium exchange and, ischemic heart, C288
- Potential difference
 anomalous response, sodium chloride, stomach (frog), G620
 transepithelial, dopamine effects, proximal tubule, F634
- Potentials
 action
 cardiac, intracellular recordings, H1115
 cardiac, low-calcium solution (frog), H827
 migrating myoelectric complex, morphine effects, G588
 bi-ionic, proximal tubules, F395
- cytoplasmic redox, protein synthesis, muscle, E184
- end-plate, presynaptic receptors and, C366
- excitatory junction, diamide effects (lobster), C59
- membrane
 calcium-free strontium transport (monkey), C353
 glucose effects, Ehrlich cells, C326
 D-glucose uptake, kidney, F340
 pulmonary artery, H900
 resting, soleus muscle, E193
 strontium-induced spontaneous sweating (monkey), C360
 tetrodotoxin effects, vascular smooth muscle, H967
- takeoff, intracellular recordings, H1115
 transepithelial, strontium-induced spontaneous sweating (monkey), C360
- Prazosin, renin secretion, α -adrenoceptors and, renal, F620
- Pregnancy: *see also Fetus; Placenta*
 uterine blood flow, chronic reduction of (sheep), H297
 uteroplacental blood flow during, kinins and, H142
- Preoptic area, hypothalamus, thermosensitivity, R77
- Preoptic lesion, medial, circadian body temperature rhythms in, R352
- Pressor responses
 baroreflexes and vasopressin, desoxycorticosterone-salt hypertension, H44
 dipsogenic, central angiotensin II and, R498
 potassium, magnesium and phenolamine blockade (dogfish), R185
- Pressure load, oxygen consumption rate and, heart, H942
- Pressure: *see also Blood pressure*
 acute regional ischemia and, subepicardium and subendocardium, H240
 arterial
 aortic nerve stimulation and, H790
 atrial stretch effects, H1056
 carotid sinus baroreflex, vagotomy and, H580
 plasma potassium concentration and, renal, F599
 atrial
 Bainbridge reflex, R244
 left, stretch effects, awake state, H1065
 capillary
 glomerular, nephron obstruction, F580
 intestinal muscle, H268
 colloid osmotic, isogravimetric hindlimb, H512
 end-diastolic, ventricular dimensions, H549
 fall, left ventricular, H131
 hydrostatic, intestinal transport and, G58, G65
 interstitial fluid, tilting effects (fish), R70
 intramycocardial, acute regional ischemia, H240
 measurements, signal multiplexer, H288
 oncotic, plasma, transcapillary fluid, protein transport and, H227
 overload
 left ventricular hypertrophy, H633
- left ventricular performance during, H611
- therapy effects, cardiac performance, H776
- perfusion, renal, autoregulation, F86
 positive end-expiratory
 carotid baroreflex effects, H470
 ventilation, ventricular dimensions during, H549
- pulsatile, metabolic rate and, intestinal autoregulation, H769
- pulse, blood volume effects, H197
- regulator, tissue volume, monitoring device, H698
- tissue, renal hypertension, awake state, H376
- venous
 central, atrial stretch effects, denervated heart, H1056
 elevation, pancreas, G596
 protein exclusion, muscle, H1044
 protein exclusion, skin, H1038
 splenic, R247
- pressure-volume relations
 oxygen consumption rate and, heart, H942
- planimetric measurement of carotid sinus deformation, H921
- Procainamide, secretion, proximal tubules, F672
- Progesterone, conversion to 20 α -dihydroprogesterone, term placenta, E178
- Proglumide, receptors, smooth muscle cells and, G400
- Prolactin
 opercular membrane, chloride secretion and, R380
 secretion, pituitary, autoregulation of, E226
- Proline, glomerular basement membrane, diabetes, F385
- Promethazine, histamine and adenosine monophosphate, cyclic, gastric mucosa (piglet), G79
- Propranolol
 intracerebroventricular norepinephrine and, free fatty acid mobilization, E248
- pacemakers, ventricular, H677
- potassium homeostasis and, hyperinsulinemia, E373
- renin release and
 carotid sinus, R318
 graded renal nerve stimulation, R552
- Prostacyclin
 adverse effects of, lung lobes, H745
 gastric mucosal integrity, prostaglandin effects, G337
 regional blood flow and, bypass, lung (sheep), H462
 vascular actions of, gastric, G582
- Prostaglandin E₂
 fever, R116
 histamine interactions, fundic glands, G21
 renal venous, efflux, ventilatory rate effects, F38
- unilateral ureteral obstruction, kidney, F220
- Prostaglandin F_{2α}, cardiovascular effects, central nervous system, R545
- Prostaglandin F_{2β}, renal venous, efflux, ventilatory rate effects, F38
- Prostaglandins

Prostaglandins (continued)
 acidity regulation, bicarbonate transport and, G183
 arachidonic acid metabolism, pancreatic acini, G493
 calcium interaction, antidiuretic hormones and, F313
 capillary permeability and, intestinal, G194
 gastric mucosal, mucosal integrity and, G337
 ischemia, myocardial, H337
 neurotensin effects, stress-induced gastric ulcers, G342
 synthesis inhibition, blood flow and, jejunal, G140
 urinary excretion of, arterial blood, E171
 uteroplacental blood flow, pregnancy, H142
 vascular actions of, gastric, G582
Prostanoids, vascular actions of, gastric, G582
Protease, plasma inhibitors, radioimmunoassay for, H602
Protein
 absorption, jejunal, G558
 calcium-binding, placenta and intestine, E47
 circulating, pulmonary endothelium, H882
 composition, parotid saliva, G231
 contractile activity, myocardial, H882
 degradation, intestinal, G650
 deposition, insulin effects, diabetes, E19
 digests, acid-induced pancreatic secretion and, G634
 hyperemia and, intestinal, G27
 low-molecular weight, absorption, amino acid effects, kidney tubules, F745
 meal, duodenogastric reflux, G603
 membrane, placental microvillous, C166
 movement, transcapillary fluid and, H227
 pancreatic secretion of, atropine effects, G608
 permeability, histamine effects, lung and forelimb, H565
 release, calcium accumulation and, barium effects, H203
 secretion, flow dependence of, exocrine pancreas, G32
 stimulation, gastric acid secretion, G85
 stretch-induced hypertrophy, skeletal muscle, wing (chicken), C333
 transport, osmotic changes and, muscle (frog), C398
Protein carboxyl methylation, stimulus-secretion coupling and, G76
Protein kinase, arterial smooth muscle relaxation, coronary, H177
Protein synthesis, cold acclimation and, liver (fish), R280
Proteoliposomes, reconstitution of D-glucose transporter, human placenta, C166
Protons, uptake, glucose-induced, pancreatic β -cells, C382
Protoporphyrin, canalicular transport of, cholesterols effects, liver, G347
Pulmonary artery
 impedance, blood volume effects, H197
 mechanics and composition, extra- and intralobar, H245
 norepinephrine levels, synaptic cleft, H233

smooth muscle cells, membrane properties of, H900, H907
Pulmonary endothelium, ischemia, acute myocardial, H337
Pulmonary impedance: see Impedance
Pulmonary vein, atrial junction and, stretch receptors, thirst inhibition, R452
Pump
 calcium, plasma membrane, myometrium, C278
 efficiency, right ventricle, H154
 sodium
 hyperpolarization, potassium-free media, skeletal muscle, C12
 smooth muscle cells, pulmonary hypertension, H907
 sodium-potassium, electrical activity and, pancreatic β -cells, C296
 sodium-potassium membrane, respiration, brown adipocytes (hamster), C46
 Purinergic nerves, blood flow and, foot (chicken), R582
Pylorus, gastric emptying and reflux, pyloromyotomy effects, G9
Pyrazinoic acid, urate uptake and, kidney cortex, F158
Pyrimidine nucleosides, uridine regulation, liver, R465
Pyrogen, bacterial, endotoxin fever and, R116
Pyrrolizidine alkaloids, single injection, pneumotoxicity and thrombocytopenia, H573
Pyruvate
 gluconeogenesis, sodium and oxygen transport and, kidney, F508
 metabolism, free water clearance and, F491
 muscle protein synthesis, E184
 oxidation, adrenergic stimulation, perfused heart (guinea pig), H30
 pancreatectomy, mixed meal response, E335
 Pyruvate carboxylase, cold acclimation, brown fat cells, C250
 Pyruvate kinase, erythrocyte metabolism, postnatal regulation of, H500
Q
QRS, duration measurement, high-frequency electrocardiography, H507
R
 Radiation detectors, radiotracer kinetics, regional myocardial, H849
 Radioautography, hyperplasia, brown adipose tissue, E353
 Radiochromatography, urinary excretion, arterial blood prostaglandins and thromboxanes, E171
 Radioimmunoassay
 immunoreactive glandular kallikrein, plasma, H602
 trypsinogens, renal failure and nephrectomy, G177
 vasopressin content, spontaneous hypertension, brain, H496
 Radiotracer kinetics, regional myocardial, H849
Receptors
 adrenergic
 hypercapnia and (goat), R441
 oxygen delivery, myocardium, exercise, awake state, H805
 parathyroid hormone-stimulated adenylate cyclase, renal cortex, F721
 renin and, carotid sinus, R318
 renin release and, R552
 α -adrenergic, platelet, verapamil interaction, H19
 α_2 -adrenergic, ion transport and, ileum, G237
 α -adrenoceptor
 myocardial responses to (lamb), H405
 renin secretion and, renal, F620
 aldosterone and corticosterone, sodium transport and, proximal tubule, F610
atrial
 modulation, renal nerve activity (monkey), F592
 renal blood flow and, H220
 stretch effects, awake state, H1065
 stretch effects, heart, H1056
 atropine, smooth muscle cells and, G400
baroreceptors
 adaptation, carotid sinus deformation, H921
 aortic, blood flow and pressure change effects, H520
 atrial, denervation, fetal (lamb), H916
 carotid, modulation of sympathetic outflow, H185
 carotid, sinus node responses to stimuli, H638
 carotid sinus, nephrectomy effects on kidney function, F181
 circulatory (turtle), R216
 diving response control (duck), R105
 low-pressure, splenic, R247
 renal blood flow and, H220
 calcium, smooth muscle cells and, G400
chemoreceptors
 aortic arch, hindlimb veins, H1050
 atrial, denervation, fetal (lamb), H916
 carotid body, oxygen and carbon dioxide responses, C200
cholecystokinin
 biological function and, pancreatic acini, G250
 cyclic nucleotide agonists of, G161
 dopamine, heat production and, brain, R471
 glycoprotein system, phenylbutazone ulcer and, G429
insulin
 circadian profiles of, E127
 development, glucocorticoids and hypothyroidism effects, lung, fetal, E384
 glucose transport deactivation and, E234
 liver, capsaicin injection and, H955
mechanoreceptors
 cardiopulmonary, positive end-expiratory pressure and, H470
 circulatory (turtle), R216
 mucosal gastrin, up- and downregulation, G243
 muscarinic, cholinergic nerves during hypercapnia, H683
 osmoreceptors, ethanol effects, R522
 parathyroid hormone
 adenylate cyclase regulation, kidney, F457
 renal (chick), E154
 postreceptor modulation, peptide and secretin, pancreatic enzyme

SUBJECT INDEX TO VOLUME 242

secretion and, G423
 presynaptic, neuromuscular transmission and, C366
 pulmonary, stretch effects, awake state, H1065
 smooth muscle cells, contraction and specific antagonists, G400
 stretch, pulmoatrial, drinking inhibition, R452
 Rectal gland, chloride secretion, tight junction (shark), C388
 Red blood cells: *see* Erythrocytes
 Reductionism, limits of models, reflexivity in nature, R167
Reflexes
 atrial vs. pulmonary stretch receptors, awake state, H1065
 autonomic, volume loading and, R244
 Bainbridge, phylogeny of, R244
 baroreceptor
 hypothalamic neurons and, R34
 tilting effects, H161
 baroreflex
 carotid, positive end-expiratory pressure, H470
 carotid sinus, vagotomy and, H580
 modulation of sympathetic outflow, H185
 pressor response to,
 desoxycorticosterone-salt hypertension, H44
 sinus node response, H638
 Bezold-Jarisch, cardiovascular changes, veratridine, awake state, H810
 cardiorenal, coronary occlusion, H107
 cardiovascular
 aortic arch, chemoreceptor stimulation and, H1050
 blood volume effects, H197
 cardiovascular depression, capsaicin injection and, liver, H955
 circulatory, nephrectomy effects on kidney function, F181
 excitatory, epicardial bradykinin effects, cardiac sympathetic afferents, H148
 inhibitory, epicardial bradykinin effects, cardiac sympathetic afferents, H148
 local, stellate ganglion, R237
 responses, splenic afferents, R247
 sinus-ganglion, H168
 viscerovisceral, splenic afferents, R247
Relaxation, isometric-isotonic, loading determinants, papillary muscle, H303
 Renal artery, constriction, hypertensive hypertrophy, H882
Renal nerves
 activity, atrial receptor modulation (monkey), F592
 catecholamine production, F261
 denervation, kidney function with, awake state, F140
 epicardial bradykinin effects, heart, H148
 graded stimulation, renin response to, R552
 modulation, macula densa and, renin secretion, R367
 sympathetic efferent, reflex responses, R247
Renin
 atrial stretch effects, heart, H1056
 cardiovascular effects, central nervous system, R545
 enzyme differences, brain, E292
 plasma, gentamicin nephrotoxicity,

kidney cortex, F477
 plasma activity
 potassium-mediated, F463
 ventilatory rate effects, F38
 reflexes, atrial vs. pulmonary stretch, H1065
 release
 adenosine role in, F423
 adrenergic modulation of, R318
 inhibition of, coronary occlusion, H107
 isoproterenol, dopamine and glucagon effects, F267
 response, graded renal nerve stimulation, R552
 secretion
 α -adrenoceptors and, F620
 renal nerve modulation of, R367
Renin-angiotensin system
 central, dipsogenic and pressor responses, R498
 uteroplacental blood flow, pregnancy, H142
 water deprivation, renal and endocrine responses to, R296
Reoxygenation, calcium ion gain and, hypoxia, myocardium, H437
Reperfusion, dexamethasone and, ischemic myocardium, H55
Resistance
 afferent arteriolar, adenosine role in, renal, F423
 coronary, adenosine and, conscious exercise, H24
 coronary extravascular, acute regional ischemia and, H240
 hepatic, active capacitance and, H1000
 peripheral, atrial vs. pulmonary stretch, H1065
 renal
 autoregulation, F86
 vascular, angiotensin II effects, F149
 vascular
 adipose tissue, tilting effects, H161
 hindquarter, H37
 pancreas, G596
 renal, spontaneous hypertension, H961
 renin release, kidney, R552
 systemic, antihistamine and indomethacin effects, H450
Respiration, ouabain-sensitive, butyrate effects, brown adipocytes (hamster), C46
Reticuloendothelial function, fibronectin effects, bacteremia, H557
Reticuloendothelial system, phagocytosis, mechanism of hyperinsulinemia after, E115
Rhythm
 circadian
 body temperature, aberrations of, medial preoptic lesion, R352
 dark pulse effects (hamster), R44
 entrainment of, serotonin and (mollusk), R326
 volume expansion and, renal (monkey), F649
 free-running, dark pulse effects (hamster), R44
 idioventricular, epinephrine effects, heart, H677
 minute, spike bursts, small intestine, species differences, G654
RNA, stretch-induced hypertrophy, skeletal muscle, wing (chicken), C333

Rubidium ions, transport, pars recta, F226

S

Saline
 hypertonic
 infusion, ethanol effects, R522
 splanchnic infusion, renal response, cirrhosis, F390
Saliva, stimulated, protein composition, G231
Salivary glands
 blood flow in, kallikrein-kinin system and, H1010
 transport, submaxillary duct epithelium, F132
Salt
 appetite, sodium concentration in cerebrospinal fluid and (sheep), R51
 excretion, chronic unilateral renal denervation, awake state, F140
Hypertension
 baroreflexes and vasopressin in, H44
 vasopressin and neurogenic mechanism interaction during, H37
 potassium infusion and, plasma renin activity, F463
 retention, chronic caval, kidney papilla, F370
Saphenous vein, norepinephrine levels, synaptic cleft, H233
Saralasin, angiotensin II antagonism, kidney effects, F149
Sarclemma
 cardiac, sodium-potassium-ATPase activity, fatty acid effects, H456
 hydrolysis of, lysosomal lipases, H652
Sarcolemmal enzymes, sodium-calcium exchange and, ischemic heart, C288
Sarcomere
 direct measurement of length, cardiac cells, H68
 energy utilization, muscle (horseshoe crab), R394
 length control, striated muscle, H411
Sarcoplasmic reticulum
 adenosine triphosphate effects, vascular smooth muscle, C242
 load dependence, heart failure, H855
 myocardium, neonatal, H834
 prolonged exercise, muscle fatigue and, C65
Satiety: *see* Feeding
Saturation transfer method, metabolism, striated muscle, C1
Seasonal acclimatization, substrate metabolism (goldfinch), R563
Secretagogues
 goblet cell secretion and, intestinal, G380
 pancreatic enzyme secretion, peptide and secretin effects, G423
 responsiveness, pancreatic enzymes and, fasting and refeeding effects, G215
Secretin
 atropine effects, action and release, G608
 bicarbonate transport, gastroduodenal (bullfrog), G100
 bile flow and (baboon), G475
 enzyme secretion and, pancreatic, G423
 Gila monster venom effects, pancreas, G470
 pancreatic enzyme secretion, cholecystokinin effects, G464
 phosphodiesterase inhibitor effects, pancreatic acini, G547

- Secretin (continued)**
protein digests, acid-induced pancreatic secretion and, G634
- Secretory immunity, intestines, G1**
- Self-reference, limits of models, R167**
- Sepsis, transvascular fluid balance during, fibronectin effects, intestines, H557**
- Septum**
interventricular
ammonia extraction and clearance, H536
extracellular marker, heart, H671
- Serine, metabolism, urea synthesis and, skeletal muscle, E87**
- Serine protease, plasma, radioimmunoassay for, H602**
- Serosal membrane, *p*-aminohippuric acid transport, urinary bladder (rock crab), R25**
- Serotonin**
circadian rhythm and, eye (mollusk), R326
transmitterlike action, rhythm, eye (mollusk), R333
- Sex differences**
body weight regulation, hypothalamic damage, R265
bone loss, postmenopausal and osteoporotic women, E82
- Shock**
adenosine triphosphate-MgCl₂ treatment, R604
endotoxic, left ventricular performance, H172
osmotic, creatine kinase release and, muscle (frog), C398
- Short-circuit current: see Current Shunt; *see also* Bypass**
- arteriovenous, spontaneous hypertension and, H722**
- portal-systemic, splanchnic hemodynamics, G156**
- Signal averager, dual channel, spontaneous signals, H291**
- Sinoatrial node, excision, atrial pacemaker activity, H98**
- Sinus afferents, superior cervical ganglion, H168**
- Sinus node, responses, carotid baroreceptor stimuli, H638**
- Skin**
bath osmolality effects, water permeability (frog), C184
battery, glabrous epidermis (cavy), R358
gills and, sodium and water exchange (amphibian), R94
permeability, channel structure and (snake), F681
protein exclusion, increased venous pressure and, H1038
- Sleep-wake cycle, mathematical model, R3, R17, R22**
- Slow waves**
adenosine monophosphate, cyclic and calcium, colon, G124
electrical, ethyl alcohol effects, antral muscle, G222
- Sodium**
absorption
cholinergic regulation, colon, G116
descending colon, C81
tryptophan effects, jejunum, newborn, G308
active transport
neuroendocrine control (fiddler crab), R505
- thermodynamics of, corneal epithelium (frog), F690
- balance**
angiotensin II, central, R498
cirrhosis, kidney, F390
neuroendocrine control (fiddler crab), R505
- cell components, vascular smooth muscle, H751**
- chemical maturation, R390**
- concentration, cerebrospinal fluid, salt appetite and (sheep), R51**
- cytosolic, pancreatic acinar secretion, G513**
- deficit, growth, sodium excess effects, E241**
- electrical activity and, pancreatic β -cells, C296**
- exchange, skin and gills (amphibian), R94**
- excretion**
adrenal enucleation effects, kidney, F453
atrial stretch effects, H1056
atrial vs. pulmonary stretch, H1065
deoxycorticosterone and, adrenalectomy, E305
regulation of, aldosterone effects, F30
- volume expansion and, renal (monkey), F649**
- water deprivation and, R296**
- exercise effects, R482**
- flux, dopamine effects, proximal tubule, F634**
- D-glucose transport and, brush border membrane vesicles, kidney, F340**
- inorganic phosphate effects, cardiac function, H79**
- intestinal interstitial hyperosmolality, absorptive hyperemia, H785**
- metabolism, intracellular pH effects, skeletal muscle (frog), C87**
- permeability: *see Permeability***
- plasma, hypertonic infusions, aldosterone effects, F30**
- potassium-free potential difference response to, stomach (frog), G620**
- potassium secretion and, luminal chloride effects, kidney, F46**
- pump: *see Pump***
- reabsorption**
ethacrynic acid and ouabain effects, kidney tubules, F254
sodium-potassium-ATPase and, kidney, F207
- transport**
amiloride effects, tissues and cells, C131
bladder to kidney (toad), F103
corticosteroid binding and, kidney cells, F610
flow dependence, exocrine pancreas, G32
gluconeogenesis and, oxygen consumption relations, kidney, F508
glucose metabolism and, free water clearance, F491
insulin effects, kidney cells, C121
medullary collecting tubule, F514
- transport properties, peritubular membrane, cortical collecting tubule, F664**
- tubular handling, growth, F705**
- urine, plasma potassium concentration and, F599**
- vasopressin secretion and, streptozotocin**
- diabetes, E411**
- Sodium-bicarbonate cerebrospinal fluid, salt appetite and (sheep), R51**
- lactic acidosis and, F586**
- Sodium-calcium exchange, sarcolemmal enzymes and, ischemic heart, C288**
- Sodium-chloride cotransport, small intestinal brush-border membrane, G263**
- electrogenic symport, stomach (frog), G620**
- entry mechanism, luminal membrane, kidney tubule, F561**
- lactic acidosis, F586**
- potassium transport and, kidney, F297**
- transport, kidney tubules (salamander), F331**
- Sodium-cyanide, sinoaortic denervation, in utero, fetal (lamb), H916**
- Sodium free-energy gradient, intracellular pH effects, skeletal muscle (frog), C87**
- Sodium-hydrogen brush border vesicles, acridine orange uptake and, F733**
- exchange**
amiloride effects, tissues and cells, C131
luminal membrane, kidney tubule, F561
submaxillary duct epithelium, F132
- Sodium ions**
cotransport, microvillus membrane vesicles, kidney, F126
- hexose transport, kidney cells, C94**
- inorganic phosphate cotransport, 1,25-dihydroxyvitamin D₃, duodenal brush-border membrane, G533**
- intracellular, insulin stimulation and, soleus muscle, E193**
- membrane properties, smooth muscle cells, pulmonary artery, H900**
- transport, urinary bladder (turtle), F627**
- Sodium-potassium, antiport, stomach (frog), G620**
- Sodium-potassium-ATPase ethacrynic acid and ouabain effects, kidney tubules, F254**
- fatty acid intermediate effects, cardiac sarcolemma, H456**
- intestinal transport, intraluminal pressure effects, G65**
- ion composition and, renal cortex, gentamicin nephrotoxicity, F477**
- norepinephrine turnover and, brown fat, E253**
- renal, sodium transport and, F207**
- sodium-calcium exchange and, ischemic heart, C288**
- thermogenesis, brown adipocytes (hamster), C46**
- Sodium-potassium membrane pump: *see Pump***
- Soleus muscle**
disused, insulin resistance for glucose metabolism, E12
- hyperpolarization, potassium-free media, C12**
- insulin stimulation, sodium and potassium activities during, E193**
- thyroid hormone action, R401**
- Species differences**
magnesium effects, ischemic heart (rat, rabbit), H89
- spike bursts, minute rhythm of, small**

SUBJECT INDEX TO VOLUME 242

- intestine, G654
- Spectrometry, fluorescence, acridine orange uptake, brush border vesicles, renal, F733**
- Spectroscopy**
 - phosphorus nuclear magnetic resonance cardiac and skeletal muscles, H729
 - striated muscle, C1
 - photon correlation, spermatozoa, C304
- Sperm, motility-inhibiting factor, epididymis, R199**
- Spermatozoa, motility, epididymis, R199**
- Sphingomyelinase, sarcolemma, hydrolysis of, H652**
- Spike burst**
 - migrating, adenosine monophosphate, cyclic and calcium effects, G124
 - minute rhythm of, small intestine, species differences, G654
- Spikes**
 - intestinal, glycemia oscillations and (pig), G15
 - myoelectric complex, morphine effects, G588
- Spin-transfer method, metabolism, striated muscle, C1**
- Splanchnic hemodynamics, portal hypertension, radiolabeled microspheres, G156**
- Spleen, catecholamine secretion, ionophore effects, E137**
- Splenic nerves, reflex responses, R247**
- Starling's hypothesis, fluid exchange, single capillaries intestinal muscle, H268**
- Stellate ganglion, peripheral neural input, neurons, R237**
- Stenosis, coronary, isoproterenol-induced myocardial dysfunction and, H260**
- Stereology, ultrastructural, parotid acinar cells, G481**
- Steroids, modulation, luteinizing hormone release, E164**
- Stiffness, diastolic, left ventricular hypertrophy and, myocardial, H633**
- Stimulation**
 - carotid baroreceptor, sinus node response to, H638
 - electrical
 - hypothalamic, R220
 - skeletal muscle, C272
 - intermittent, fiber transformation, muscle, C373
 - metabolic changes during, muscle fibers, C218
 - residual, cholecystokinin, enzyme secretion, pancreas, G416
 - restricted, cholecystokinin-induced, pancreatic enzyme secretion, G464
 - sustained paired, developing myocardium, H13
- Stimulus-secretion coupling: see Coupling**
- Stomach**
 - biphasic development, pentagastrin sensitivity, G111
 - cholecystokinin effects, food intake and gastric emptying (monkey), R491
 - gastric mucosal barrier disruption, bile salt and bile acid effects, G95
 - pentagastrin stimulated, oxygen uptake, G565
 - sodium-chloride, electrogenic symport (frog), G620
- Stop-flow technique**
 - folic acid and methotrexate, renal tubular transport (monkey), F484
 - glomerular hemodynamics, nephron
- obstruction, F580**
- Streptozotocin**
 - diabetes, osmolar effects on vasopressin secretion, E411
 - diabetes-induced inhibition of contractility and, heart, H490
 - diabetes mellitus, calcium homeostasis in, E451
 - glomerular basement membrane, diabetes, F385
- Stress**
 - development, vascular smooth muscle (swine), C109
 - diastolic stiffness, left ventricular hypertrophy, myocardial, H633
 - gastric ulcers, neurotensin effects, G342
 - gravitational, blood pressure and interstitial fluid pressure and (fish), R70
 - heat, open-loop gain, R275
 - immobilization, hormonal changes with hypertension, E330
 - myocardial, estimation of, H875
 - renal function and, R482
- Stretch, activation, cerebral artery, H760**
- Striation patterns, sarcomere length measurement, cardiac cells, H68**
- Stroboscopy, spermatozoa, C304**
- Stroke work, heart, pressure load vs. volume load, H942**
- Strontium**
 - calcium-binding protein regulation, placenta and intestine, E47
 - calcium-free medium, spontaneous sweat secretion in (monkey), C353
 - catecholamine secretion, ionophore effects, adrenal gland and spleen, E137
 - potassium exchange, bone, H705
 - smooth muscle contraction, arterial, C25
 - spontaneous sweating, transepithelial potential during (monkey), C360
- Structure and function, form and process, R409**
- Subendocardium, acute regional ischemia, pressure effects, H240**
- Subepicardium, acute regional ischemia, pressure effects, H240**
- Submandibular gland**
 - blood flow in, kallikrein-kinin system and, H1010
 - kallikrein, plasma, radioimmunoassay for, H602
- Submaxillary duct epithelium, ion transport, F132**
- Substrates**
 - metabolic levels, blood chemistry homeostasis (seal), R591
 - regulation, muscle protein synthesis, E184
 - selective maintenance, tissue potassium, perfused kidney, F360
- Suckling, insulin development, pancreatic and plasma, E220**
- Sucrase, metabolism, germ-free, G650**
- Sucrose**
 - cerebrospinal fluid, salt appetite and (sheep), R51
 - clearance, taurine-conjugated bile acid effects, biliary, G40
 - distribution, cerebrospinal fluid to brain and blood, F171
 - extracellular marker, heart, H671
- Sugar**
 - absorption, intestinal motility and (pig), G15
 - blood, oscillations, intestinal motility and (pig), G15
 - transport**
 - brush border membrane vesicles, kidney, F340
 - kidney (flounder), F415
 - Sulfate, potassium secretion and, luminal chloride replacement, kidney, F46**
 - Sulphydryl agents, carnitine transport, heart, H585**
 - Sulfbromophthalein, oxygen consumption, bile flow and, liver (skate), G313**
 - Surfactant, hydrophobic, transport, small intestine, G408**
 - Surgical overload, contractile properties during, hindlimb muscles, C259**
 - Sweat gland**
 - spontaneous secretion, calcium-free strontium medium (monkey), C353
 - transepithelial potential, strontium-induced spontaneous sweating (monkey), C360
 - Swim training: see Exercise**
 - Sympathectomy**
 - cardiac hypertrophy, catecholamine effects, hypertension, H1015
 - chemical, brown fat, C159
 - lumbar, vasopressin and, H37
 - Sympathetic afferents, cardiac, epicardial bradykinin effects, H148**
 - Sympathetic nerves**
 - catecholamine secretion, ionophore effects, adrenal gland and spleen, E137
 - discharge, hypothalamic neurons and, R34
 - renin secretion, α -adrenoceptors, renal, F620
 - stimulation, active capacitance and, hepatic, H1000
 - Sympathetic nervous system**
 - activation, renin release and, R552
 - activity, tilting effects, H161
 - immunoregulation, high- and low-responders, R30
 - norepinephrine turnover, brown fat, E253
 - stimulation, hypercapnia and (goat), R441
 - tetrodotoxin effects, vascular smooth muscle, H967
 - transients, baroreflex modulation, H185
 - Sympathetic-parasympathetic interaction, glucagon effects, cardiac chronotropic response, H7**
 - Sympathetic stimulation, capillary recruitment, intestinal oxygenation and, G435**
 - Sympathomimetic agents, ion transport, ileum, G237**
 - Synapses, β -adrenergic, norepinephrine effects, free fatty acid mobilization, E248**
 - Synaptic cleft, norepinephrine levels in, vascular tissue, H233**

T

- Taurine**
 - active transport, sodium-dependent, kidney (fish), R64
 - bile acids, lipid secretion and sucrose clearance and, biliary, G40
 - excretion, kidney (fish), R64
- Taurocholate**
 - oxygen consumption, bile flow and, liver

Taurocholate (*continued*)
 (skate), G313
 vitamin D absorption and, G326

Taurocholic acid, gastric mucosal barrier disruption, mechanism of, G95

Teat sphincter, rhythmic contractions in, expulsion mechanism (cow), R181

Temperature changes, erythrocyte permeability to lipophilic solutes, C74
 low, adipose tissue morphology and, E93
 motility and, spermatozoa, C304
 regulation open-loop gain, R275
 thermosensitivity, hypothalamic slices, R77
 selection, cold acclimation and (fish), R157

Temperature, body brain, corneal convection and (pigeon), R577
 circadian rhythms, aberrations of, medial preoptic lesion, R352
 daily activity and, R1
 human circadian system, mathematical model, R3, R17, R22

Testis body weight regulation, hypothalamic damage, R265
 function, active immunization against testosterone and luteinizing hormone-releasing hormone (lamb), E201
 sperm, motility-inhibiting factor, R199

Testosterone, active immunization against (lamb), E201

Tetraethylammonium, effects, pulmonary artery membrane properties, H900

Tetrodotoxin, membrane potentials and, vascular smooth muscle, H967

Thallium-201, kinetics, regional myocardial, H849

Theophylline calcitonin effects, insulin secretion, E206
 estrogen interaction and, ovary role in, uterus, E121
 inhibition, ventricular contraction, H349
 phosphodiesterase inhibitor effects, pancreatic acini, G547

Therapy, cardiac performance and, spontaneous hypertension, H776

Thermodynamics, sodium and potassium active transport, corneal epithelium (frog), F690

Thermogenesis hyperplasia, brown adipose tissue, E353
 nonshivering butyrate effects, brown adipocytes (hamster), C46
 catecholamine sensitivity, brown fat cells, C250
 shivering, glucose uptake and, diabetes, muscles, R109

Thermoregulation arteriolar vasoconstriction and, cremaster muscle, H996
 blood flow and, foot (chicken), R582
 circadian rhythms, aberrations of, medial preoptic lesion, R352
 dopamine receptor activation, brain, R471

Thermosensitivity, hypothalamic slices, R77

Thiol, oxidizing, neuromuscular transmission and (lobster), C59

Thioreactive agent, neuromuscular transmission and (lobster), C59

Thirst: *see Drinking*

Thrombocytopenia, monocrotaline and, H573

Thromboxane generation, lung, blood flow during bypass (sheep), H462
 lung lobes, H745
 urinary excretion of, arterial blood, E171
 vascular actions of, gastric, G582

Thromboxane A, adrenocorticotropin-stimulated flow, endoperoxide analogues and (toad), F119

Thromboxane B₂, unilateral ureteral obstruction and, kidney, F220

Thymidine ³H-labeled brown adipose tissue hyperplasia, E353
 luteinizing hormone-releasing hormone, pituitary, E392
 incorporation, glucose transport and, adipocytes, E368

Thymidine kinase, activity, gastric mucosal cell proliferation, G135

Thyroid hormones direct action, muscle properties, R401
 malnutrition and biochemical composition and, developing lung, E378

Thyroparathyroidectomy, phosphate transport, kidney tubules, F353

Thyrotoxicosis, awake state, left ventricular performance in (calf), H113

Thyrotropin tumor cells, thyrotropin secretion, calcium effects, E109

Thyrotropin, secretion, thyrotropin-releasing hormone stimulated, calcium effects, E109

Thyrotropin-releasing hormone prolactin secretion and, pituitary, E226
 thyrotropin secretion and, calcium effects, E109

Thyroxine action, muscle properties, R401
 ontogeny of corticosterone and corticosterone-binding globulin, postnatal development, E33

Tibia, chondroosseous circulation, regional, H365

Tides of human consciousness, R163

Tilting: *see Posture*

Tissue: *see also* specific type and site calcium ion exchange, reoxygenation and, hypoxia, myocardium, H437
 osmolality: *see Osmolality*
 pressure, renal hypertension, awake state, H376
 sodium transport, amiloride effects, C131

Tonic force, reduced shortening velocity, smooth muscle, arterial (swine), C102

Toxicity, lithium, urinary acidification and, F23

Toxin, heat-stable, small intestinal motility and, G360

Tracellular water, arterial wall changes, renal hypertension, H477

Tracers, positron-emitting, beta probe and, myocardial metabolism, H62

Trachea, maximal force potential, smooth muscle, C283

Transcapillary exchange

intestinal muscle, H268
 molecular weight markers, postglomerular circulation, model, F436

Transcortin, oxygen, thyroxine effects, postnatal development, E33

Transepithelial voltage, calcium movement, cortical collecting duct, F285

Transmitter hormones and, bicarbonate transport, gastric and duodenal (bullfrog), G100
 release, diamide effects (lobster), C59
 serotonin, rhythm, eye (mollusk), R333

Transport: *see specific subject and site*

Triacylglycerol, metabolism, diabetes and, heart, H1084

Triacylglycerol lipase, sarclemma, hydrolysis of, H652

Triglyceride, lymphatic transport, small intestine, G408

Triglyceride lipase, intestinal, phospholipase A and, fasting effects, G168

Triton, adenosine triphosphate protective action, lysosomes, C192

Trypsin, pancreatic secretion of, atropine effects, G608

Trypsin inhibitors, pancreatic exocrine response, obesity, G612

Trypsinogen fasting and refeeding effects, pancreas, G215
 plasma pancreatic, renal failure and nephrectomy, G177

Tryptophan, transport properties, jejunum, newborn, G308

d-Tubocurarine, presynaptic receptors, neuromuscular transmission and, C366

Tubuloglomerular feedback, angiotensin II, antagonism, F149

Tumor promoter, sodium-dependent hexose transport, kidney cells, C94

U

Ulcers
 gastric after pylorectomy, G9
 stress-induced, neurotensin effects, G342
 phenylbutazone, glucose effects, G429

Ultrafiltration, glomerular, methodologic considerations, F1

Ultramicroanalysis, electrolyte loss, tubular fluid samples, kidney, F202

Urate transport, kinetic constants for, F100
 uptake, copper effects, kidney membrane vesicles, F158

Urea cerebrospinal fluid, salt appetite and (sheep), R51
 lactate metabolism, renal epithelia (pig), C41
 pharmacokinetics, brain and cerebrospinal fluid, R339
 synthesis, arginine metabolism and, skeletal muscle cells, E87

Ureagenesis, skeletal muscle cells, E87

Uremia, calcium transport, ileum, G128

Ureter occlusion, renin release and, F267

SUBJECT INDEX TO VOLUME 242

unilateral obstruction, thromboxane B₂ and, kidney, F220
 Uricase, urate uptake, kidney cortex, F158
 Uridine plasma concentration, liver, R465 regulation, liver, R465
 Urinary bladder acidification, lithium effects, F23 adrenocorticotropin-stimulated flow, endoperoxide analogues and (toad), F119
p-aminohippuric acid transport, luminal and serosal steps (rock crab), R25 carbonic anhydrase and granular cells, specialized function of (turtle), F627 compliance, water permeability and, stretch (toad), F8 transepithelial ion transport, kidney (toad), F103 wall tension, compliance and permeability (toad), F8
 Urinary concentrating mechanism, papillary collecting duct, remnant kidney, F657
 Urine catecholamine uptake and excretion, kidney, F56 dilute, nonoxidative glucose metabolism and, F491 exercise effects, R482 osmolality, vasopressin role in, fetal (lamb), F740 prostaglandin and thromboxane excretion, arterial blood, E171 Ussing chamber, intestinal filtration-secretion, intraluminal pressure effects, G65
 Uterus blood flow chronic reduction, pregnancy (sheep), H297 placental transfer as a function of (ewe), H429 estrogen-theophylline interaction, ovary role in, E121 sinoaortic denervation, fetal (lamb), H916

V

Vagal afferents reflex cardiovascular changes, veratridine and, awake state, H810 renin release, coronary occlusion, H107
 Vagotomy aortic constriction and, myocardial oxygen extraction, H310 atrial receptor modulation, renal nerve activity (monkey), F592 fundic, gastric response to, G660 mucosal gastrin receptors and, G243
 Vagus nerve cervical, carotid sinus pressure, renal blood flow and, H220 circulatory mechanoreceptors (turte), R216 stimulation, glucagon effects, cardiac chronotropic response, H7
 Valinomycin, D-glucose transport and, brush border membrane vesicles, kidney, F340
 Vascular compromise, uterine, model, H297
 Vascular contractility: *see Muscle, heart*
 Vascular resistance: *see Resistance*
 Vascular tissue, synaptic cleft,

norepinephrine levels and, H233
 Vasoactive drugs, blood flow and, foot (chicken), R582
 Vasoactive intestinal peptide: *see Peptides*
 Vasoconstriction adrenergic coronary, exercise, awake state, H805 arteriolar, heat stress and, cremaster muscle, H996 bypass, lung thromboxane effects (sheep), H462 cerebral, fatty acids and cyclooxygenase, H629 vasopressin effects, hypertension, H37
 Vasodilation, blood flow and, foot (chicken), R582
 Vasodilators, mesenteric circulation and, G541
 Vasomotion, foot (chicken), R582
 Vasopressin antagonist, anesthesia (chicken), H314 arginine, endotoxin fever and, R116 atrial stretch effects, heart, H1056 calcium-prostaglandin interaction and, F313 cardiovascular effects, central nervous system, R545 central dipsogenic effect of, R372 compliance and permeability, stretch responses and, bladder (toad), F8 endocrine responses, arterial hypotension (sheep), E215 fetal homeostasis and (lamb), F740 glycogen metabolism, hepatocytes, E262 hypertension and, F727 interaction, desoxycorticosterone and salt hypertension, H37 NADH fluorescence, oxygen consumption, hepatocytes, C172 osmolal effects, streptozotocin diabetes, E411 plasma, ethanol effects, R522 pressor response to, desoxycorticosterone-salt hypertension, H44 reflexes, atrial vs. pulmonary stretch, H1065 spontaneous hypertension, brain, H496 Veins cutaneous, aortic arch, chemoreceptor stimulation and, H1050 vascular smooth muscle, tetrodotoxin effects, H967
 Velocimetry, laser-Doppler, mucosal blood flow, intestines, G668
 Vena cava chronic constriction, plasma flow and tissue osmolality, papillary, F370 sphincter, diving (beaver, nutria), R434
 Venoconstriction, hepatic, active capacitance, H1000
 Venom, actions, dispersed acini, pancreas, G470
 Venous return, umbilical, hemorrhage effects, fetus (lamb), H543
 Ventilation, positive-pressure, ventricular dimensions during, H549
 Ventilatory rate, prostaglandin efflux, renal venous, F38
 Ventral medulla, extracellular fluid pH, blood flow and, hypoxia, R195
 Ventricles: *see Brain ventricles; Heart ventricles*
 Venules, spontaneous hypertension and, cremaster muscle, H381
 Verapamil calcium ion influx and, pancreatic β -cell, E59 calcium uptake and, vascular smooth muscle, H797 cardiac action potentials, low-calcium solution (frog), H827 interaction, platelet α -adrenergic receptors and, H19
 Vessel, branched elastic transparent, model, H122
 Visceral pathways, central, amygdaloid lesion in, ingestive responses and, R129
 Vitamin D depletion, biliary excretion in, G522 25-hydroxyvitamin D comparison with, absorption, G326 parathyroid hormone receptors and, kidney (chick), E154
 Vitamin D₃ 1,25-dihydroxy-chlorothiazide effects, intestinal absorption, G575 inorganic phosphate transport, brush-border membrane, duodenal, G533 low-calcium diet, uremia, ileum, G128 phosphate restriction, kidney tubules, F353 phosphate uptake and, renal cells (chick), C312 streptozotocin-induced diabetes mellitus, E451 [³H]-25-hydroxy-, biliary excretion of, vitamin D depletion, G522
 Voltage gradients, skin battery, glabrous epidermis (cavy), R358
 Volume cell bath osmolality effects (frog), C184 glucose effects, C326 control, extracellular, cirrhosis, kidney, F390 distribution, brain pharmacokinetics, R339 end-diastolic, ventricular dimensions, H549 extracellular, heart, H671 interstitial, change, monitoring device, H698 overload, ventricular adaptation to, H973 pancreatic α -cell, dietary modulation of, G354 planimetric measurement of, carotid sinus deformation, H921 protein exclusion venous pressure and, muscle, H1044 venous pressure and, skin, H1038 reabsorption, proximal tubules, F499 regulation, whole-body capillary transport parameters, R227 tissue, change, monitoring device, H698
 Volume expansion atrial receptor modulation, renal nerve activity (monkey), F592

Volume expansion (*continued*)

- Bainbridge reflex, R244
- blood, left atrial stretch effects, heart, H1056
- carbonic anhydrase inhibition, proximal reabsorption and, F274
- prolonged central, renal responses, awake state, F649
- Volume load, oxygen consumption rate and, heart, H942
- Volume loading, Bainbridge reflex, R244
- Volume regulation, kidney response, awake state (monkey), F649

W

Water

- adrenocorticotropic-stimulated flow, endoperoxide analogues and (toad), F119
- balance, ethanol effects, R522
- body, chemical maturation, R390
- deprivation
 - physiological mechanisms for thirst (monkey), R423
 - renal and endocrine responses, R296
- exchange, skin and gills (amphibian), R94

- excretion, chronic unilateral renal denervation, awake state, F140
- homeostasis, angiotensin II, central, R498
- immersion, volume expansion and, renal (monkey), F649
- osmotic, permeability, kidney tubules, F321
- permeability: *see Permeability*
- radioactive, absorption, intraluminal pressure effects, intestinal, G65
- reabsorption
 - carbonic anhydrase inhibition and, proximal, F274
 - papillary collecting duct, remnant kidney, F657
 - proximal tubules, F499
- regulation, dorsomedial hypothalamic lesion, weanling, R285
- transport
 - intestinal, respiratory disorder effects, G486
 - intraluminal pressure effects, small intestine, G58, G65
- unstirred layer, jejunum, G364
- unstirred layer effect, kidney tubules, F321

- Water-to-food intake ratio, dorsomedial hypothalamic lesion and, weanling, R285

- Waveforms, defibrillator, safety factor for, heart cells, H662

Weanling

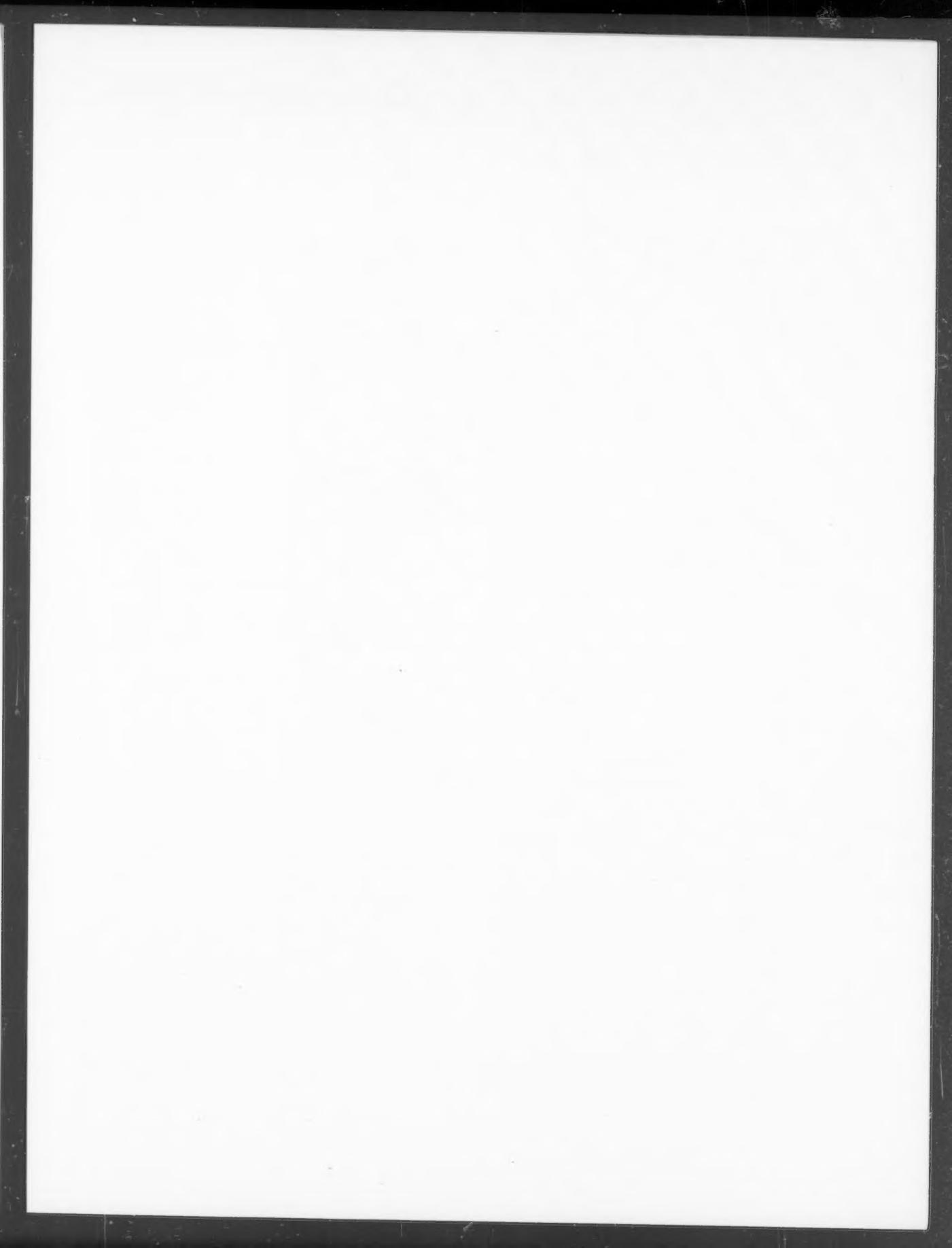
- endocrine responses, arterial hypotension (sheep), E215
- water regulation, dorsomedial hypothalamic lesion and, R285
- Weight
 - body
 - glomerular filtration rate and, R303
 - hypothalamic lesions and, E273
 - regulation, hypothalamic damage, R265
 - Wound currents, skin battery, glabrous epidermis (cavy), R358

X

- Xanthine oxidase, albumin clearance and, intestinal mucosa, G448

Z

- Zymosan, binding and internalization, phagocytosis, C339



Page — Issue Guide
American Journal of Physiology
Volume 242

January	C1-C129	E1-E72	G1-G78	H1-H132	R1-R162	F1-F101
February		E73-E136	G79-G182	H133-H301		F103-F206
March	C131-C258	E137-E213	G183-G296	H303-H484	R163-R408	F207-F296
April		E215-E286	G297-G433	H485-H727		F297-F422
May	C259-C415	E287-E351	G435-G539	H729-H926	R409-R613	F423-F560
June		E353-E465	G541-G681	H927-H1134		F561-F757

Author Index to Volume 242

Abe, H., H996
Abildskov, J. A., H421
Abou-Mourad, N., E97
Abramson, R. G., F158
Abumrad, N. N., E398
Achs, M. J., R533
Ackerman, R. A., R157
Acott, K. M., C166
Addonizio, V. P., H19
Adibi, S. A., E407, G85
Agus, Z. S., F379
Aihart, J. A., C339
Akaike, N., C12
Aksoy, M. O., C109
Albertini, R., H142
Albisser, A. M., E309, E335
Alexander, E. A., E305, F453
Aloia, J. F., E82
Altschuld, R., H1022
Ambos, H. D., H62
Ammons, W. S., R552
Amsler, K., C94
Amundsen, E., R97
Andersen, D. K., E343
Anderson, S., H429
Andres, R., E343
Ansel, A., H1022
Anuras, S., G124, G498
Apfelbaum, M., R349
Archer, P. G., R178
Ardito, T. A., C388
Arieff, A. I., F586
Arsonson, P. S., F126
Asai, T., H990
Ashmore, C. R., C178
Ashton, J. H., H955
Atkinson, R. L., R429
Atkinson, S. H., R429
Austin, J. E., H297
Avery, K. S., H996
Avioli, L. V., E451
Aviv, A., E241
Avner, D. L., G347
Ayedjian, H. S., F23
Ayus, J. C., F181
Azuma, T., C25

Bachur, N. R., G281
Baczynski, R., F699
Badke, F. R., H611
Baer, R. W., H392
Baertschi, A. J., H520
Bahiric, A., E335
Baile, C. A., G612
Bailey, A., G250
Baines, A. D., F261, F491
Baker, C. H., H381
Balaban, R. S., C172
Balakir, R., C312
Baldwin, G. F., R94
Balint, J. A., G408
Ball, C. R., H490
Ball, S. G., F56
Banchero, N., R178
Bank, N., F23
Barbosa, M. C., E248
Barker, A. T., R358
Barlas, N., G161, G464
Barlow, C. H., C265
Barman, S. M., R34
Barnathan, E. S., H19
Barnes, J., C312
Barnhart, J. L., G40
Barrett, J. D., E330
Barrett, P. Q., F126
Barron, K. W., H810

Barotti, R. J., H55
Baruch, S. B., F158
Bashford, C. L., C265
Bassingthwaite, J. B., E146, H705
Battagin, R. L., H288
Battler, A., H260
Bauer, A. J., G222
Bauman, J. W., Jr., E241
Baxi, L. V., F740
Beck, I. T., G442
Beck, N., F220
Beckman, J. K., H652
Beck-Nielsen, H., E127
Beigelman, P. M., C296
Beinfeld, M. C., G161
Belbeck, L., G588
Belizon, I. J., F370
Bell, D. R., H1038, H1044
Bell, T. G., H573
Bellinger, L. L., R285
Bello-Reuss, E., F634
Bellorin-Font, E., F457
Belur, E. R., E255
Bengele, H. H., E305, F453
Bennett, T. D., H1000, H1118
Benos, D. J., C131
Bentley, P. J., R94
Berecek, K. H., H593
Berenson, M. M., G347
Bergmann, S. R., H62
Berl, T., F313
Bern, H. A., R380
Bernardis, L. L., R285
Berndt, T. J., F447
Berne, R. M., H797
Bernstein, M. H., R577
Bers, D. M., C404
Bersohn, M. M., C288, H89, H671
Berthoud, H. R., E280
Besedovsky, H. O., R30
Besterman, J. M., C339
Bethencourt, D., F627
Bhargava, V., H507
Bhatnagar, R. K., H1015
Bia, M. J., F641
Biagi, B., F532
Biber, T. U. L., C121
Biebuyck, J. F., E1
Biermann, E., E234
Binder, H. J., G116, G209
Binswanger, U., G128
Bishop, V. S., H810
Bissell, D. M., G147
Bissonnette, J. M., C166
Bitar, K. N., G400
Black, A. J., F360
Black, J. A., C166, H500
Bleeker, E. R., H450
Blix, A. S., R97
Block, E. H., R411
Blomstrand, E., C272
Blum, A. L., G9, G603
Blum, J. J., C172, E262
Boettcher, D. H., R244
Bohlen, H. G., H785
Bolt, M. J. G., G326
Bondiolotti, G. P., R30
Bonjour, J.-P., F353, F705
Bonvalet, J. P., F63, F69
Booth, F. W., E12
Booz, G. W., F415
Bosnjak, Z. J., R237
Boulant, J. A., R77
Bourdeau, J. E., F285
Bourgoignie, J. J., F657

Boyer, J. L., C388, G52, G313, G319
Brady, A. J., H68
Brash, D. W., F38
Braunwald, E., H776
Brautbar, N., F699
Brenner, A., E292
Bridge, J. H. B., H671
Bridges, C. R., F750
Brierley, G. P., H1022
Britton, S. L., H1050
Brody, M. J., H593, H1015
Bromberger-Barnea, B., H450
Brooker, G., H827
Brooks, G. A., E418
Brooks, S., G215
Brown, B. P., G498
Brown, T. R., C1
Bruns, D. E., E47
Bruns, M. E. H., E47
Brutsaert, D. L., C283, H303
Bruttig, S. P., H797
Brynjolfsson, G., H98
Buch, K. L., G408
Bueno, L., G15, G654
Bukowiecki, L., E353
Bulkley, G. B., G565, G596
Bünger, R., H30
Burchfield, D. M., C347
Burg, M., C229
Burgess, M. J., H421
Burke, K. M., H996
Burke, M. J., H967
Burkett, D. E., H127
Burns, T. W., G47
Buse, M. G., E184
Busija, D. W., H683
Büttner, D., R303

Caflisch, C. R., F78
Caillet, D., H973
Caldwell, M. D., R570
Caligiuri, M., R528
Candia, O. A., F690
Capasso, J. M., H359, H882
Carabello, B. A., H633
Cardinal, J., F246
Carey, L. C., E53
Carlson, G. M., G360
Carone, F. A., F112
Carpenter, C., F699
Carpí-Medina, P., F321
Carrasquer, G., G620
Carretero, O. A., H142, H602, H1010
Carrière, B., F246
Carrière, S., F246
Carroll, R. G., R185, R306
Carter, N. W., F470
Carvalho, M. H., E137
Casanello-Ertl, D., E87
Cassidy, S. S., H549
Cataland, S., E53
Caverzasio, J., F705
Cha, C.-J. M., C41
Chan, C. P., E19, E445
Chan, Y. L., F532, F604
Chance, B., C265
Chandra, A., R471
Chang, E. B., G237
Charles, L. G., G47
Charlton, J. D., H520
Charney, A. N., G486
Chaudry, I. H., R604
Chen, H. I., H698
Cheng, L., C312
Chern, Y. F., R471

Cherrington, A. D., E97, E398
Cheung, P. W., R261
Chevalier, R. L., F190
Chevrier, J. L., H973
Chew, C. S., G504
Chey, W. Y., G608
Chi, M. M.-Y., C218
Chien, S., F86
Childers, J. W., F30
Chinard, F. P., C74
Chou, C. C., G27, G140
Chou, S.-Y., F370
Christensen, E. I., F112
Chu, D. T. W., E323
Chu, T.-C., G620
Clapman, R., R352
Clark, K. E., H297
Clench, J., R447
Coe, F. L., G575
Cogan, M. G., F274, F499
Cohen, J. J., F78, F360
Cohen, M. P., F385
Cohn, S. H., E82
Collem, M. J., G423
Collet, A. J., E353
Collins, S. M., G416
Colton, C. A., C59
Colton, J. S., C59
Connor, J. A., C36
Considine, P., R51
Consigny, P. M., H392
Contney, S. J., H967
Cook, J. S., C94
Cooke, A. R., G308
Cooke, H. J., C81, G308
Cooper, K. E., R116
Corbett, S. W., E273
Cornell, L., R528
Corrent, G., R326, R333
Cosin, J., H131
Costa, D. P., R591
Coulombe, P., E378
Courtright, J. B., C65
Cox, R. H., H245, H477
Crane, S. A., G258
Crass, M. F., III, H1084
Crawshaw, L. I., R157
Creighton, G. K., R189
Cronin, R. E., F477
Crozatier, B., H973
Cummings, J. W., R189
Cysyk, R. L., R465
Czeisler, C. A., R3

Daggett, W. M., H131, H849
D'Agostino, J. B., E33
Dale, S. L., E305
Dallman, M. F., E102
Dallman, P. R., E418
Dal Ri, H., H133
Danforth, E., Jr., F238
Daniel, E. E., C278
Daniel, S. S., F740
Danilo, P., Jr., H677
Danisi, G., G533
Da Prada, M., R30
Darby, A., H490
Davidheiser, S., R394
Davidson, S. B., R109
Davies, D. G., R195
Davies, K. J. A., E418
Davies, R. E., R394
Davis, C. W., R505
Davison, J. S., G76
Davson, H., F171
Dawson, W. R., R563
Decker, R. A., G65

- Deen, W. M., F750
 DeFranzo, R. A., E73, F641
 Del Rey, A., R30
 Denton, D. A., R51
 Deren, J. A., G455
 Desjeux, J.-F., G111, G558
 Devaskar, S. U., E384
 Devaskar, U. P., E384
 DiBona, G. F., F620, R367
 Dieguez, G., R441
 Díez, A., G333
 Dillon, B. C., H557
 Dillon, P. F., C102
 Dinda, P. K., G442
 Di Nicolantonio, R., R498
 DiSalvo, J., H177
 Dobbins, J. W., G116
 Dobbins, W. O., III, G1
 Donahue, M. J., R514
 Donald, D. E., H1050
 D'Onofrio, F., E206
 Donowitz, M., G58, G65
 Doucet, A., F346
 Douglas, I. H. S., F56
 Dousa, T. P., F447
 Downar, E., H526
 Downing, S. E., H191, H405
 Doyle, A. E., R498
 Driscoll, D. J., H13
 Duane, W. C., G95
 Dubois, A. B., R70
 DuBose, T. D., Jr., F470
 Dubue, P. U., R220
 Ducroc, R., G111, G558
 Duducqian-Vartavarian, L., E87
 Dujardin, J.-P. L., H197
 Duling, B. R., H688
 Dunham, B., H745
 Dunson, W. A., F681
 Durnwald, M., H297
 Dussault, J. H., E378
 Dvietys, P. R., G570
 Dzau, V. J., E292
- Eagen, P. C., R116
 Eastham, C. L., H867
 Eby, B., F552
 Echtenkamp, S., F592
 Eckberg, D. L., H185, H638
 Eckberg, M. J., H638
 Edelist, G., H392
 Edelstone, D. I., H50
 Eggena, P., F8
 Eide, I., F267
 Eisenhofer, G., R522
 Eisenstein, A. B., G354
 Ekblad, E. B. M., G79
 Elahi, D., E343
 Ellis, G. B., R44
 Elsner, R., R97
 Emmett, N. L., E292
 Endoh, M., H349
 Eppes, D. E., H254
 Epstein, F. H., F508
 Erickson, A. E., F313
 Erlinger, S., G40
 Eskin, A., R326, R333
 Eveloff, J., F561
 Exton, J. H., E323
- Fabiato, A., H291
 Faraci, F. M., R216
 Farman, N., F63, F69
 Fater, D. C., H1056, H1065
 Faubert, P. F., F370
 Faust, I. M., E93
 Favus, M. J., G575
 Feeney, G. A., C184
 Fein, H., F95
- Felder, R. B., H148
 Feldman, G. M., G486
 Fell, R. D., C218
 Fenstermacher, J. D., F171
 Fenton, R. A., H797
 Ferguson, E. R., F477
 Fernstrom, J. D., E411
 Ferrannini, E., E73
 Ferrell, R. E., R447
 Fethé, H., R167
 Feuerstein, G., R545
 Fidelman, M. L., C87, C121
 Field, M., G237
 Filkins, J. P., E115
 Finander, P., F699
 Fink, A. S., G634
 Finsy, R., C304
 Fioramonti, J., G15, G654
 Fishbein, M. C., H776
 Fisher, D. J., H657
 Fitts, R. H., C65
 Fitzhugh, R., R339
 Fitzsimons, J. T., R452
 Fleckenstein, P., G654
 Fleisch, H., F353, F705
 Flomatróm, G., G100, G183
 Fletcher, P., H776
 Flynn, J. T., H337
 Follea, N., E353
 Fondacaro, J. D., G541
 Forcino, C. D., H197
 Ford, G. D., C242
 Forrest, J. N., Jr., C388
 Forsberg, J. O., G448
 Forster, G. V., E226
 Forster, R. P., R64
 Forte, L. R., E154
 Foskett, J. K., R380
 Fowler, B. N., H849
 Fox, J., E287
 Franklin, T. D., H996
 Freeman, P. L., C259
 Friedman, D. W., G552
 Friedman, H., H113
 Friedman, J. J., H227
 Friedman, S. M., H751
 Fripp, R. R., H405
 Froesch, E. R., E368
 Frohlich, E. D., H722
 Fujisawa, A., H990
 Fukushima, J. Y., C288
- Gabriel, L., G168
 Gagnon, C., G76
 Galbo, H., C272, E25
 Gallagher, K. P., H260
 Gallavan, R. H., Jr., G140, G541
 Ganguli, S., E384
 Gantert, D., H496
 Garcia, A. G., E137
 Gardner, J. D., G161, G416,
 G423, G464, G470, G547
 Garfinkel, D., R533
 Garner, A., G100, G183
 Garrick, R. A., C74
 Gärtner, K., R303
 Garza, C., R390
 Garzon, B., G111
 Gascon-Barré, M., G522
 Gastineau, P., H855
 Gavras, H., E25
 Gebber, G. L., R34
 Gee, M. H., H337
 Geer, P. G., H1065
 Geffin, G., H849
 Geiger, P., F699
 Geiselman, P. J., R129
 Geloso, J.-P., G111
 Genest, J., R136
- Gennari, F. J., F78
 Geokas, M. C., G177
 Geras, E. J., E109
 Gerich, J. E., E67
 Gershengorn, M. C., E109
 Giannella, R. A., G260
 Gibisch, G., F95, F331, F532,
 F544
 Giles, R. D., R199
 Gilmore, I. T., G40
 Gilmore, J. P., F592
 Gimeno, J. V., H131
 Giocondi, M.-C., F246
 Giugliano, D., E206
 Glantz, S. A., H288
 Gleason, S. D., R296
 Godfrey, K. R., R421
 Goethals, M. A., H303
 Goetz, K. L., H1056, H1065
 Goetzman, B. W., H543
 Goldberger, A. L., H507
 Goldfine, I. D., G250
 Goldman, S., H113
 Goldstein, L., R64
 Gómez, B., R441
 González, E., F321
 Gonzalez, F., H671
 González, M. C., R441
 Good, D. W., F46
 Goodner, C. J., R255
 Gopalakrishnan, R., H122
 Gordon, C. J., R275
 Gore, R. W., H268
 Goriya, Y., E335
 Gorus, F. K., C304
 Gottheiner, T. I., F745
 Gottschalk, C. W., F140
 Granger, D. N., G194, G202,
 G448, G565, G570, G596
 Grant, G. S., R121
 Grantham, J. J., F293
 Gray, D. E., E428
 Green, N., C229
 Greenfield, J. C., Jr., H818
 Greenwood, M. R. C., E220
 Grignolo, A., R482
 Grijalva, C. V., R129
 Grim, E., G364
 Grinwald, P. M., H203
 Grøgaard, B., G448
 Groscolas, R., R458
 Gross, F., H496
 Grossman, M. I., G337
 Grossman, W., H633
 Groszmann, R. J., G156
 Grover, A. K., C278
 Guay, G., E353
 Guggino, W., F331
 Gunn, I. G., F56
 Guntheroth, W. G., H172
 Guntupalli, J., F552
 Gupte, S., H254
 Guzman, L., G333
- Habara, Y., E360
 Hackbarth, H., R303
 Haddy, F. J., H24
 Hagadorn, I. R., R505
 Hagg, S. A., E407
 Halevy, J., G209
 Hallac, R., F508
 Halter, J. B., E317, R528
 Hammerman, M. R., F17
 Hance, A. J., R528
 Handler, J. S., C229, F610
 Hansen, B. C., E40, R255
 Harada, E., E360
 Haraoka, S., H310
- Häring, H. U., E234
 Harris, B. G., R514
 Harrison, D. G., H867
 Hartmann, F., G147
 Haschemeyer, A. E. V., R280
 Haselgrove, J., C265
 Hasselblatt, A., E298
 Hatt, P. Y., H855, H973
 Hawkins, R. A., E1
 Hayashi, H., H421
 Hayashi, T., H942
 Haymond, M. W., E67
 Hayslett, J. P., G209
 Heath, H., III, E287
 Heath, M. E., R157
 Hechtman, H. B., H745
 Hedden, M. P., E184
 Heisler, S., G76
 Heistad, D. D., G498, H683
 Heitmann, L. J., F38
 Helke, C. J., R545
 Hellstrom-Stein, R. J., F285
 Helman, S. I., F521
 Hemon, P., C159
 Henius, G. V., C326
 Henning, S. J., E33, G89
 Henrich, W. L., F477
 Henriksson, J., C272
 Henriksson, R., G481
 Herchuelz, A., E59
 Herman, N. L., R247
 Hernandez, D. E., G342
 Hersey, S. J., G504
 Hershcopf, R. J., E343
 Hess, M. L., C242
 Heylings, J. R., G100
 Heyman, M., G558
 Heymann, M. A., H657
 Heyndrickx, G. R., H805
 Higashi, Y., F634
 Higashino, H., E241
 Hilden, S., F340
 Hildmann, B., G533
 Hilliker, K. S., H573
 Hillman, P. E., R582
 Hilman, R., H490
 Hinckley, E. J., G429
 Hintz, C. S., C218
 Hirata, S., H942
 Hirschowitz, B. I., G660
 Hisano, R., H942
 Hjelmåhl, P., H161
 Hjellund, E127
 Ho, J. J. L., G32
 Hochachka, P. W., R85
 Hodgkin, B. C., H127
 Hoffman, J. I. E., H392
 Hofmann, A. F., G40
 Hogan, R. D., H996
 Hohl, C., H1022
 Hol, R., R97
 Holdaas, H., F267
 Holliday, C. W., R25
 Hollinger, A., G9
 Holmes, E. W., H818
 Holzman, I. R., H50
 Hood, V. L., F238
 Hopfer, U., G263, G272
 Hordof, A. J., H677
 Horiuchi, J. K., E392
 Horton, E. S., F238
 Horwitz, B. A., C46
 Hosomi, H., H580
 Houck, P. C., R195
 Hough, S., E451
 Housmans, P. R., H303
 Hruska, K. A., F17
 Hsu, C. H., H961
 Huang, K. C., F484

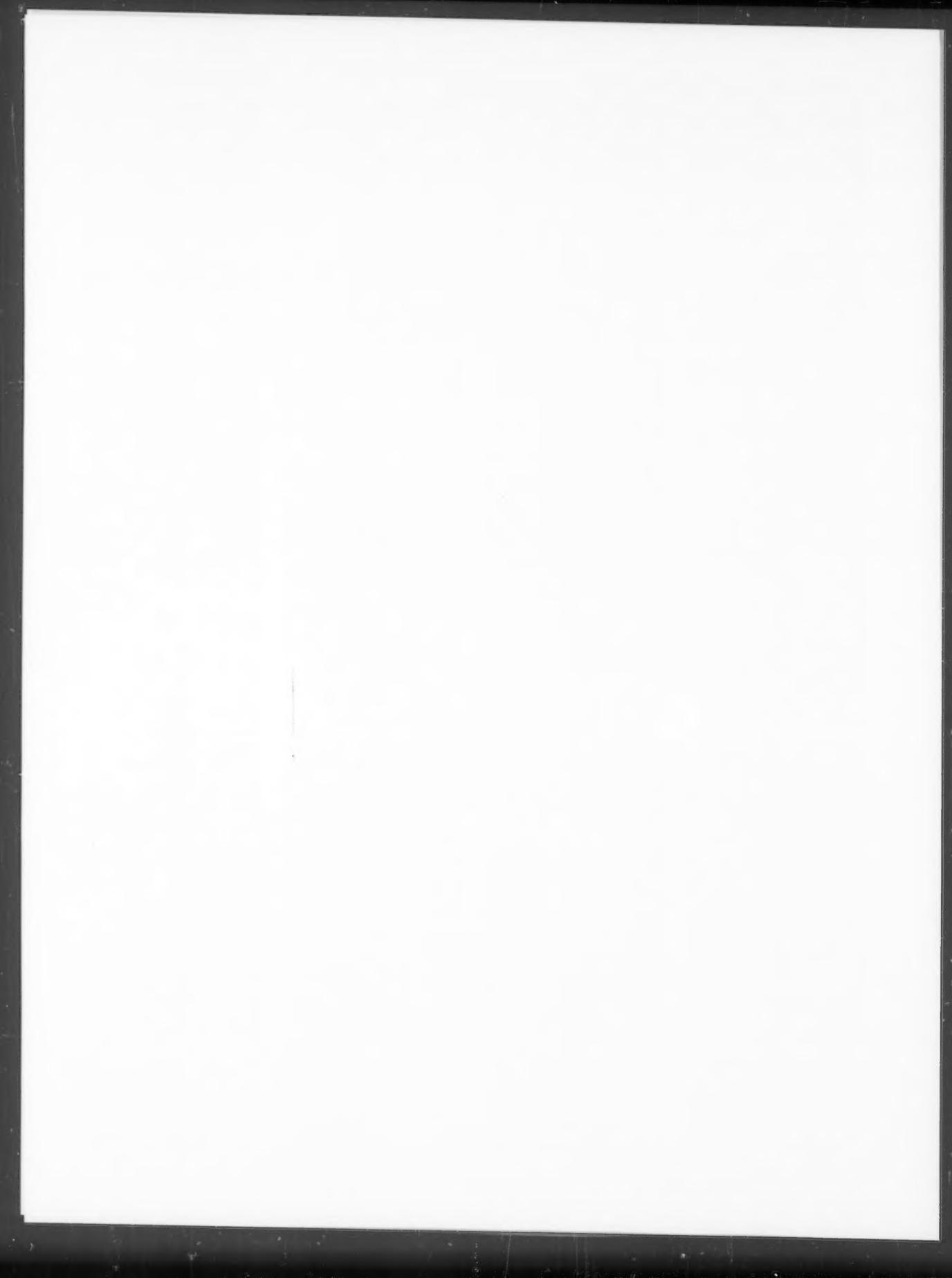
AUTHOR INDEX TO VOLUME 242

- Huang, S.-C., H536
 Huggins, R. A., R390
 Humphreys, M. H., F181
 Hurst, J. G., R141, R151
 Husain, M. K., F740
 Hutchinson, J. S., R498
 Hüttemeier, P. C., H462
 Hynes, R. A., G58, G65
- Iberall, A. S., R411
 Ichikawa, I., F580
 Iijima, T., H349
 Ilson, R. G., G475
 Ingwall, J. S., H729
 Itoh, T., H325
 Itskovitz, J., H543, H916
 Ivy, J. L., C218
 Iwamoto, G. A., H955
 Izutsu, K. T., G231
- Jacky, J. P., H172
 Jacobowitz, D. M., R545
 Jacobs, M. L., H849
 Jacobson, E. D., G541
 Jaeger, P., F95
 Jaffe, L. F., R358
 Jahjah, L., E353
 James, L. S., F740
 Jamison, R. L., F297
 Janz, R. F., H875
 Jarmakani, J. M., H437, H1077
 Jeanrenaud, B., E280
 Jehn, D. W., G634
 Jen, K.-L. C., E40, R255
 Jensen, J., E127
 Jensen, R. T., G161, G416, G464, G470
 Jester, J., H392
 Johns, B. L., H227
 Johns, C., F78
 Johnson, L. R., G135, G243
 Johnson, P. C., H211
 Johnson, P. R., E220
 Johnson, R. H., R522
 Johnson, R. L., Jr., H549
 Johnston, C. I., F721, F727
 Jones, D. R., R105
 Jones, J. L., H662
 Jones, M. D., Jr., H862
 Jones, M. R., E87
 Jones, R. E., H662
 Jones, S. B., H98
 Julita, M., F202
 Jung, A., R141, R151
- Kaiser, K. K., C218
 Kaissling, B., C117
 Kamm, K. E., C109
 Kampine, J. P., R237, R247
 Kanaide, H., H980
 Kaneda, Y., F634
 Kanno, T., E360
 Kaplan, J. E., H645
 Kappagoda, C. T., H220
 Karim, F., H220
 Karlmark, B., F95
 Kass, D. A., F649
 Kasting, N. W., R116
 Kathpalia, S. C., G575
 Katz, A. I., F207, F346
 Kauffman, G. L., Jr., G337, G582
 Kawabori, I., H172
 Kay, I., R326
 Keesey, R. E., E273, E437, R311
 Keller, N. E., R185, R306
 Kelly, P. J., E146, H705
 Kelso, S. R., R77
- Kemmer, F. W., E428
 Kemmler, W., E234
 Kemper, W. S., H260
 Kempson, S. A., F447
 Kennett, F. F., H456
 Kher, V., H602
 Khosla, M. C., H314
 Kiefer, S. W., R129
 Kiil, F., F254, F267
 Kilpatrick, D., H1111
 Kim, D. H., C65
 Kimura, K., H990
 King, V. F., F158
 Kirchner, K. A., F463
 Kirpekar, S. M., E137
 Kjekshus, J. K., R97
 Klahr, S., F17
 Kleinhaus, S., R577
 Kleinzeller, A., C41, F415
 Klitzman, B., H211
 Knauer, T. E., H652
 Knauf, H., F132
 Kneehans, A. W., E253
 Knox, F. G., F447
 Kobayashi, T., E241
 Koch, P. L., C166
 Koepke, J. P., R482
 Koeppen, B. M., C117, F521
 Koerker, D. J., R255
 Kohen, K. R., G21
 Koike, H., G297
 Koller, M., G128
 Koong, L. J., E19
 Kopin, I. J., R545
 Kopple, J. D., E87
 Korman, L. Y., G547
 Korsmo, H. A., G650
 Kostreva, D. R., R247
 Koushanpour, E., H921
 Koyama, S., R552
 Koyanagi, S., H867
 Krausz, M. M., H745
 Kreutz, W., F132
 Krivokapich, J., H536
 Kronauer, R. E., R3, R22
 Kumada, T., H260
 Kuriyama, H., H325
 Kurtz, T. W., H961
 Kurtzman, N. A., F604
 Kusachi, S., H310
 Kushmerick, M. J., C1
 Kuwajima, I., H722
 Kvietys, P. R., G194, G202, G565, G596
 Kwan, C. Y., C278
- LaBrecque, D. R., G281, G289
 Lacy, W. W., E97, E398
 Lahiri, S., C200
 Lakatta, E. G., H927
 Lalone, B. J., H713
 Lang, R. E., H496
 Langaard, Ø., F267
 Langeluttig, S. G., E154
 Langer, G. A., H79
 Largman, C., G177
 Laris, P. C., C326
 Lau, K., F552
 Lau, Y. T., C184
 Lazarowitz, V. C., F586
 Leach, W., F586
 Leaf, A., F103
 Leal-Pinto, E., F158
 Lebenthal, E., G215
 Lebrun, P., E59
 Lecarpentier, Y., H855
 Lechner, A. J., R178
 Lee, J. C., H191, H405
 Lee, P. C., G215
- Leeper, L. L., G89
 Lefcourt, A. M., R181
 Le Grimmel, C., F246
 LeHir, M., C117
 Leiter, E. H., G354
 Leksell, L., R51
 Lemon, G. J., E146, H705
 Lenoir, T., R349
 Lerch, R. A., H62
 Leshin, L. S., R220
 Lester, R., G642
 Leung, P. C. K., E164
 Levine, G. M., G455
 Levine, L. L., H745
 Levine, R. A., G21
 Levy, M. N., H7
 Lewiston, N., R528
 Liang, C. T., C312
 Lichtenberger, L., G460
 Lickley, H. L. A., E428
 Licko, V., G250
 Liedtke, C. M., G263, G272
 Lief, P. D., F23
 Liggins, G. C., R85
 Light, T. R., H365
 Ligumsky, M., G337
 Liljenquist, J. E., E97
 Lillo, R. S., R105
 Lin, M. T., R471
 Linde, B., H161
 Linden, J., H827
 Linderer, T., H1111
 Lindskov, H. O., E127
 Liran, J., R352
 Livnat, A., H107, R318
 Lluch, S., R441
 Lobos, E., G493
 Logsdon, C. D., G388
 Lombard, J. H., H967
 Longhurst, J. C., H955
 Lonigro, A. J., F38
 Lopez, G. E., R577
 López de Pablo, A. L., R441
 Lopez-Novoa, J. M., F390
 Lorell, B. H., H131
 Low, R. B., C339
 Lowry, C. V., C218
 Lowry, O. H., C218
 Lubcke, R., F132
 Lucci, M. S., F470
 Ludens, J. H., F119
 Luff, A. R., C259
 Lux, R. L., H421
- Mabuchi, K., C373
 MacAnespie, C. L., H1000
 Macchia, D. C., C207
 MacDonald, N. S., H536
 MacGee, J., H254
 Machen, R. E., R380
 Machen, T. E., G79, G388
 Mackay, D., H220
 Maddox, D. A., F78
 Magnusson, M. R., H470, H790
 Maguire, J. J., E418
 Majumdar, A. P. N., G135
 Makhlouf, G. M., G400
 Makino, N., H980
 Malaisse, W. J., E59
 Malhotra, A., H882
 Malik, A. B., H645
 Malluche, H. H., F197
 Maltby, B., H705
 Mandel, L. J., C124
 Mandenoff, A., R349
 Mangal, A. W., C36
 Manning, D. R., C234
 Manning, J. W., R552
 Mans, A. M., E1
- Manthey, A. A., C319
 Mapes, J. S., H1056
 Marcus, M. L., H867
 Margolis, S., G168
 Marliss, E. B., E309, E335
 Marnane, W. G., G65
 Maron, M. B., H565
 Marsh, R. L., R563
 Martellock, A. C., E392
 Martensson, L., H429
 Martin, G., H131
 Martin, J. L., G360, H855
 Martin, K., E171
 Martin, K. J., F457
 Martinez-Maldonado, M., F390
 Marusich, M., R401
 Masoro, E. J., R89
 Massry, S. G., F197, F699
 Mathias, J. R., G360
 Matsuguchi, H., H37, H44
 Matsumoto, M., H990
 Matsuyama, T., H990
 May, J. M., C121
 Mayer, G. P., R141, R151
 Maylie, J. G., H834
 McCabe, R., C81
 McCaleb, M. L., R596
 McCarter, R. J. M., R89
 McCleary, M., H168
 McCord, J. M., G448
 McCormack, C. E., R261
 McGillivray, R., H1115
 McHale, P. A., H818
 McHugh, P. R., R491
 McIndoe, R. A., H751
 McKeon, T., R434
 McKenzie, J. E., H24
 McKinley, M. J., R51
 McKinney, T. D., F672
 McKinstry, P., H365
 McKIveen, R. E., R44
 McLaughlin, C. L., G612
 McLendon, J. M., G596
 McNeil, J. S., G65
 McQueen, D. M., H1095
 Meis, P. J., E215
 Meiss, R. A., C146
 Mekhjian, H., E53
 Melbin, J., H122
 Melby, J. C., E305
 Meldolesi, J., G297
 Mellick, P. W., R570
 Mendelsohn, F. A. O., R498
 Mendlar, P., H526
 Mersereau, W. A., G429
 Meschia, G., H429
 Meyer, H. H., E298
 Meyer, J. H., G634
 Meyer, R. A., C1
 Meyer, W., F197
 Michael, L. H., H13
 Migliorini, R. H., E248
 Milam, K. M., E437, R311
 Miles, J. M., E67
 Miller, D. S., R25
 Miller, J. C., G634
 Miller, R. J., G237
 Miller, W. H., Jr., E93
 Minaker, K. L., E373
 Minnear, F. L., H645
 Mirsky, I., H633
 Miskiewicz, G., H1031
 Mitch, W. E., E226
 Mitchell, J. H., H549, H955
 Mohrman, D. E., H949
 Molé, P. A., R204
 Molteni, R. A., H862
 Mommaerts, W. F. H. M., R401
 Monks, A., R465

- Moon, D. G., H645
 Moore, R. D., C87
 Moore-Ede, M. C., F649, R3
 Moore-Gillon, M. J., R452
 Moran, A., F406
 Moran, J. F., H98
 Moran, T. H., R491
 Moreno, A. H., H172
 Moretó, M., G333
 Morgat, J. L., G558
 Morkin, E., H113
 Morley, M. G., G354
 Morris, M., E215
 Morse, E. L., E407
 Mory, G., C159
 Moser, S., F699
 Motomura, S., H349
 Mouw, D. R., R51
 Movahed, H., E40
 Mueggler, P. A., H500
 Mueller, R., F463
 Mühlbauer, R. C., F353
 Muhlert, M., F202
 Muller, A. F., R51
 Müller, D. C., E343
 Müller-Lissner, S. A., G9, G603
 Mulligan, E., C200
 Mullin, J. M., C41
 Mullins, R. J., H1038, H1044
 Munson, P. J., F610
 Murdaugh, H. V., Jr., C388
 Murer, H., G533
 Murphy, B. J., R85
 Murphy, E., C124
 Murphy, R. A., C102, C109
 Mutz, B. F., F23
 Muylaert, P., H805
 Myers, P., R189
 Myers, R. D., R596
- Nagashima, H., H310
 Nakamura, M., H980
 Nakamura, Y., H314
 Nakanishi, T., H437
 Nakayama, K., H760
 Natke, E., Jr., F664
 Nayler, W. G., H203
 Neary, B. A., H890
 Nechad, M., C159
 Nedergaard, J., C250
 Neely, J. R., H855
 Neer, R., R141, R151
 Nelson, D. O., C36
 Nelson, J. D., E309
 Nemeroff, C. B., G342
 Neutra, M. R., G370, G380
 Newell, J. B., H131
 Nicholson, W. F., E12
 Ninomiya, I., H942
 Nishimura, H., H314
 Nishioka, K., H437, H1077
 Nishiyama, O., H310
 Nissen, S. L., E67
 Nix, K. L., F477
 Nogueira, J., G360
 Nolan, W. F., R195
 Noodergraaf, A., H122
 Norman, A. W., F197
 Northcott, P., G588
 Novin, D., R129
 Nwoye, L., R401
- Oberg, S. G., G231
 Oberleithner, H., F331
 Obrist, P. A., R482
 O'Connor, J. A., R570
 O'Doherty, J., E193, G513
 O'Donnell, M. E., C46
 O'Dorisio, T. M., E53
- Ogden, J. A., H365
 Ogilvy, C. S., R70
 Ohhashi, T., C25
 Ohno, K., R339
 Okada, R. D., H849
 Olajos, M., H113
 Olsen, W. A., G650
 Olsson, R. A., H310
 O'Malley, L. J., G380
 Onofrio, J.-P., G111
 Oparil, S., F112
 Opdyke, D. F., R185, R306
 Orlando, R. C., G342
 O'Rourke, M., G177
 Orr, J. A., R216
 Ørstavik, T. B., H1010
 Ortiz, C. L., R591
 Osborn, J. L., R367, F620
 Oscai, L. B., R212
 Osgood, R. W., F1
 Ostrow, P. T., E226
 Ott, C. E., F575
 Owen, R., G147
 Owens, K., H456, H652
- Pace, C. S., C382
 Pace, P. E., G209
 Packer, L., E418
 Paganelli, C. V., R121
 Palacios, I., H131
 Pan, G.-Z., G423
 Pannier, J. L., H805
 Pappas, T. N., E53
 Pardridge, W. M., E87
 Park, I.-S., H13
 Park, R., F586
 Parks, D. A., G448
 Parson, I., H526
 Parsons, R. H., C184
 Partridge, L. D., R173
 Passariello, N., E206
 Passaro, E., Jr., G177
 Pasyk, K., H1031
 Pasyk, S., H1031
 Patel, B. C., C74
 Paul, L. T., H197
 Paulson, D. J., H1084
 Payne, B. D., H392
 Pedersen, O., E127
 Pegram, B. L., H722
 Peikin, S. R., G612
 Peitsch, W., G243
 Pek, S. B., E40
 Pennell, J. P., F657
 Perez, G., E428
 Perkins, F. M., F610
 Perlmutter, M. N., R77
 Permanetter, B., H30
 Perrone, R. D., E305
 Perry, M. A., G194, G565, G570, G596
 Peskin, C. S., H1095
 Peterson, D. R., F112
 Petruska, C. N., G475
 Pettigrew, K. D., R339
 Pettit, T. N., R121
 Pfaffman, M. A., H490
 Pfeffer, J. M., H776
 Pfeffer, M. A., H776
 Pfeifer, J. D., F447
 Phang, J. M., C393
 Phelps, M. E., H536
 Philipson, K. D., C288
 Pieñe, H., H154
 Pieper, H. P., H197
 Pilato, S. F., R3
 Pinshow, B., R577
 Pinsky, M. R., H450
- Pintér, K., C373
 Pipeleers, D. G., C304
 Pisano, J. J., G470
 Plot, D. W., F149
 Poelling, R. E., E154
 Pohost, G. M., H849
 Polinski, W. J., C19
 Pollack, K. L., G326
 Ponce-Hornos, J. E., H79
 Porat, A., G575
 Porte, D., Jr., E317
 Porush, J. G., F370
 Potter, G. D., G642
 Potts, J. T., Jr., R141, R151
 Poussier, P., E309
 Prange, A. J., Jr., G342
 Prat, J. C., E137
 Pritchard, J. B., F415
 Proctor, K. G., H688
 Prosser, C. L., C36
 Pucacco, L. R., F470
 Puchelle, E., C31
- Quamme, G., F202
- Rabito, S. F., H602
 Rabkin, R., F745
 Rabovsky, J. L., C36
 Rahn, H., R121
 Rahwan, R. G., C347
 Raizes, G. S., E343
 Rall, J. A., C19, C347, H1
 Ramaswamy, K., G460
 Ramirez, A., H131
 Ramsay, C. E., G21
 Randall, W. C., H98
 Rapoport, S. I., R339
 Rascher, W., H496
 Raufman, J. P., G470
 Rector, F. C., Jr., F274, F499
 Reed, J. S., G313, G319
 Reenstra, W. W., F733
 Rehm, W. S., G620
 Reidelberger, R., G177
 Reif, M. C., F158
 Reinach, P. S., F690
 Reineck, H. J., F1
 Reiser, P. J., C52
 Remily, R. M., H359
 Rendig, S. V., H485
 Ribale, B., C296
 Richter, E. A., E25
 Ricquier, D., C159
 Riedel, G. L., G668, H769
 Riffle, R., H122
 Rijnsburger, W. H., H411
 Riley, E., G156
 Rinkema, L. E., H98
 Ritz, E., F197
 Robin, D. A., R528
 Robin, E. D., R528
 Rodgers, J. B., G408
 Rodriguez, A., R458
 Roeske, W. R., H113
 Rogenes, P. R., F140
 Rojas, A. M., E121
 Rolls, B. J., R423
 Rolls, E. T., R423
 Rominger, J. M., G608
 Romos, D. R., E253
 Roos, K. P., H68
 Rorie, D. K., H233
 Rose, E., H677
 Rose, J. C., E215
 Rosen, M. R., H677
 Rosen, S., F627
 Rosenberg, A. A., H862
 Rosenberg, I. H., G326
 Rosenblum, W. I., H629
- Ross, B. D., F491
 Ross, J., Jr., H260
 Ross, P., E82
 Roth, R. A., H573, H844
 Rothe, C. F., H1000
 Rothman, S. S., G32
 Rouslin, W., H254
 Rowe, J. W., E373
 Roy, R. N., F149
 Rubin, D., E398
 Rubio, R., H797
 Ruckebusch, M., G15
 Ruckebusch, Y., G654
 Ruderman, N. B., E25
 Rudolph, A. M., H543, H657, H916
 Ruel, J., E378
 Russell, J. E., E451
 Ruth, R. C., C192
 Rutten, M. J., G79
 Ryu, K. H., G364
- Saba, T. M., H557
 Sabbath, H. N., H240
 Sabina, R. L., H818
 Sachs, G., C382, F132
 Sacktor, B., C312, F340
 Sadoul, P., C31
 Sadowski, B., R372
 Saito, D., H310
 Sanders, K. M., G222
 Sankaran, H., G250
 Sansom, S. C., F100
 Sarna, S., G588
 Satinoff, E., R352
 Sato, F., C353, C360
 Sato, K., C353, C360
 Sawyer, C. H., E164
 Schafer, J. A., F226, F297
 Schanbacher, B. D., E201
 Schaper, J., H1031
 Schaper, W., H1031
 Scharschmidt, B. F., G628
 Schattenmann, G., G9, G603
 Schedl, H. P., G460
 Scher, A. M., H1118
 Scheuer, J., H882
 Schielke, G. P., E40
 Schiffri, E. L., R136
 Schmid, P. G., H37, H44, H1015
 Schmidt, G., E298, H133
 Schmidt, K. L., G642
 Schmidt-Silver, C., H177
 Schnieberger, E. E., H890
 Schneider, E. G., F30, R296
 Schnitzer, J. E., H365
 Schoenle, E., E368
 Schröck, H., R64
 Schuette, A. H., H462
 Schull, W. J., R447
 Schultz, H. D., H1056, H1065, R318
 Schultz, S. G., G642
 Schulze-Delrieu, K., G258
 Schwartz, J. H., F627
 Schwartz, M., G620
 Schwartzel, E. H., Jr., G21
 Sechi, A. G., H142, H602, H1010
 Scott, N. R., R582
 Scott, R. L., R570
 Seagard, J. L., R237
 Seeholzer, S. H., C87
 Segel, L. D., H485
 Seider, M. J., E12
 Seino, M., H142
 Sejersted, O. M., F254
 Sen, P. K., G575
 Senekjian, H. O., F100
 Sepe, F. J., H470, H790

AUTHOR INDEX TO VOLUME 242

- Seraydarian, K., R401
 Serizawa, T., H633
 Sesoko, S., H722
 Sgambato, S., E206
 Shakir, K. M. M., G168
 Shareghi, G. R., F379
 Shattil, S. J., H19
 Shaw, J. O., F220
 Sheng, H.-P., R390
 Shepherd, A. P., G435, G668, H769
 Shepro, D., H745
 Sherman, D., F197
 Sherwin, R. S., E73
 Sherwood, L. M., G575
 Shiau, Y.-F., G455
 Shikama, H., E323
 Shine, K. I., H89, H536, H619
 Shinsako, J., E102
 Shirer, H. W., R216
 Sievers, R. E., H1111
 Sievert, C. E., G95
 Siewert, J. R., G9, G603
 Silva, P., F508
 Silver, P. J., H177
 Silverman, M., F436, F711
 Simchon, S., F86
 Simmons, M. A., H862
 Simpson, D. R., R401
 Sinar, D. R., G47
 Siregar, H., G27
 Sitrin, M. D., G326
 Slavicek, J. H., H961
 Smith, E. B., H127
 Smith, N. D., G52, G313, G319
 Smith, O. L. K., R109
 Smith, P. L., H450
 Sobel, B. E., H62
 Sobocińska, J., R372
 Sohraby, S., C229
 Sole, M. J., F261
 Sommer, O., H30
 Sonnenberg, A., G9, G603
 Sonnenblick, E. H., H359, H882
 Sorge, J., C265
 Sorkin, E., R30
 Southern, P. M., F477
 Sowers, J. R., E330
 Sparrow, M. P., C333
 Spath, J. A., Jr., H55, H337
 Specian, R. D., G370, G380
 Speeg, K. V., Jr., F672
 Speir, G. R., G243
 Sperling, M. A., E384
 Speckermann, G., H751
 Spielman, W. S., F423
 Spitalewitz, F370
 Spokes, K., F508
 Sprague, R. S., F38
 Sréter, F. A., C373
 Stanton, B. A., F544
 Stark, R. I., F740
 Stark, R. J., E193, G513
 Steele, R., C229
 Steen, P. A., F254
 Steer, M. L., G297
 Steffen, R. P., H24
 Stein, J. H., F1
 Stein, P. D., H240
 Steiner, K. E., E97
 Steinsapir, J., E121
 Steinseifer, B., H1031
- Steikiel, W. J., H967
 Stenson, W. F., G493
 Stephens, J. E., G628
 Stephens, N. L., C283
 Stephenson, A. H., F38
 Stephenson, R. K., F261
 Sterman, W. D., H89
 Stern, J. S., E19, E437, E445, R204, R311
 Stevenson, J. G., H172
 Stewart, C. C., R429
 Stinnett, H. O., H470, H790
 Stokes, B. T., C52
 Stokes, G. D., F681
 Stokes, J. B., F514
 Stone, D. N., H197
 Stoner, L. C., F664
 Storelli, C., G533
 Storlien, L. H., R311
 Strack, I., G354
 Strasberg, S. M., G475
 Strauss, H. W., H849
 Strickler, R. C., E178
 Strobeck, J. E., H882
 Stuesse, S. L., H7
 Stull, J. T., C234
 Suarez-Kurtz, G., C398
 Suga, H., H942
 Sullivan, L. P., C81
 Sumner, R. P., H314
 Sund, T., H184
 Sundaram, S. G., G168
 Sundaram, U., R339
 Sundet, W. D., H1056, H1065
 Surma, M. L., F385
 Sutliff, V. E., G423, G470, G547
 Sutton, E. T., H381
 Suzuki, H., H325, H900, H907
 Swabb, E. A., G58, G65
 Swain, D. P., H713
 Swain, J. L., H818
 Szczepanska-Sadowska, E., R372
 Szvetko, D., C373
 Szwed, J. J., H227
- Taborsky, G. J., Jr., E317
 Tai, Y.-H., G65
 Takach, K., H381
 Takata, Y., R498
 Takeuchi, K., G243
 Tamayo, J., F457
 Tan, S. T., H68
 Tang, L. K., E392
 Tannen, R. L., F238
 Takata, Y., R498
 Takeuchi, K., G243
 Tamayo, J., F457
 Tan, S. T., H68
 Tang, L. K., E392
 Tannen, R. L., F238
 Tarazi, R. C., H94
 Tarjan, E., R51
 Taylor, A. E., G194
 Taylor, C. J., F119
 Tchernitchin, A., E121
 Teitelbaum, S. L., E451
 Tarazi, R. C., H94
 Ter Keurs, H. E. D. J., H411
 Ter-Pogossian, M. M., H62
 Terreros, D. A., F293
 Thames, M. D., F620, H148, R367
 Theodore, J., R528
 Thomas, F. B., E53
 Thomas, J. L., R195
 Thomas, M. L., E154
 Thompson, C. I., F423
 Thornburg, K. L., C166
 Tinker, J. P., F100
- Tobias, B., E178
 Tobin, J. D., E343
 Tomaneck, R. J., H1015
 Tordoff, M. G., R129
 Torella, R., E206
 Trainor, C., F436
 Trank, J. W., R216
 Trayzman, R. J., H862
 Trippodo, N. C., H376
 Troutman, S. L., F226
 Truelove, E. L., G231
 Tsao, T.-S., F745
 Tsay, B. L., R471
 Tso, P., G408
 Turek, F. W., R44
 Turkenkopf, I. J., E220
 Turner, R. J., F406, F711
 Turner, T. T., R199
 Tuttle, R. S., H168
 Twarog, B. M., H900, H907
 Tyberg, J. V., H1111
 Tyce, G. M., H233
 Tyler, K. A., F641
 Tyson, J. E., E226
- Unger, T., H496
 Utsunomiya, T., H745
 Uyama, O., H990
- Vanable, J. W., Jr., R358
 Van den Pol, A. N., R265
 Vandewalle, A., F63, F69
 Van Dyke, R. W., G628
 Van Heuningen, R., H411
 Van Itallie, C. M., E411
 Van Tienhoven, A., R582
 Vari, R. C., F575
 Vary, T. C., H585
 Vaswani, A., E82
 Vatner, S. F., R244
 Veach, G., G552
 Veale, W. L., R116
 Velázquez, H., F46
 Verrier, E. D., H392
 Vetterlein, F., E298, H133
 Villanueva, M. L., G416
 Vlahakes, G. J., H392
 Vorobioff, J., G156
 Vranic, M., E428
- Wade, J. B., C117, C388
 Walberg, J. L., R204
 Wald, A., G85
 Wald, R. W., H1115
 Walker, K. L., C184
 Walker, M. D., G547
 Wallin, B. G., H185
 Wallshein, V., E47
 Walsh, K. B., C87
 Warnock, D. G., F395, F561, F733
 Watkins, W. D., H462
 Watlington, C. O., C121, F610
 Watson, P. D., H512
 Weber, F. L., Jr., G552
 Weglicki, W. B., C192, H456, H652
 Weiner, I. M., F100
 Weinman, E. J., F100
 Weisinger, R. S., R51
- Weiss, J., H619
 Weitzman, E. D., R3
 Wesley, C. R., F592
 Wesselman, A., H254
 Wever, R. A., R17
 Whinnery, M. A., F220
 Whipple, J. H., R429
 White, F. N., R157
 Whitmoyer, D. L., E164
 Whittembury, G., F321
 Whittle, B. J. R., G582
 Whittow, G. C., R121
 Wicker, P., H94
 Wiegand, D. M., G95
 Wilkening, R. B., H429
 Willems, W. J., H967
 Williams, J. A., C393, G250
 Williams, P. E., E97, E398
 Williams, W. M., F484
 Willis, P. L., R220
 Wilmoth, F. R., H381
 Wilson, D. F., C366
 Wilson, H. D., G460
 Winfree, A. T., R163
 Wist, A. O., H291
 Witzmann, F. A., C65
 Wolf, M. B., R227
 Wolfe, R. A., E40, R255
 Wood, C. E., E102
 Wood, C. L., E262
 Wood, R. J., R423
 Woodcock, E. A., F721
 Woods, R. L., F727
 Work, J., F226, F297
 Wright, F. S., F46
 Wu, V.-Y., F385
 Wyatt, R. F., H421
 Wyss, C. R., H1118
- Yacoe, M. E., R189
 Yacoub, N. J., R514
 Yaffe, S., H30
 Yasuhara, K., H310
 Yates, F. E., R1, R409
 Yee, V. J., F395, F733
 Yelich, M. R., E115
 Yellin, E. L., H1095
 Yin, F. C. P., H927
 Yokoyama, K., H580
 Yoneda, S., H990
 Yoshimura, R., H980
 You, C. H., G608
 Young, D. B., F599
 Yovos, J. G., E53
 Yu, B. P., R89
 Yu, S. S., E241
- Zacur, H. A., E226
 Zahm, J.-M., C31
 Zanzi, I., E82
 Zapf, J., E368
 Zapol, W. M., H462, R85
 Zehr, J. E., H107, R318
 Zerbe, G. O., R178
 Zerbe, R. L., R545
 Zieske, H., H7
 Zimmerman, T. W., G116
 Zimpfer, M., R244
 Zinman, B., E309, E335
 Zipser, R. D., E171
 Zucker, A., R296
 Zucker, I. H., F592



American Journal of Physiology

VOLUME 242

January-June 1982

AJP: Cell Physiology

Editor: H. E. Morgan. *Associate Editors:* R. D. Berlin, J. S. Cook, R. E. Fellows, J. S. Handler, P. A. Knauf, M. J. Kushmerick, M. Lieberman, A. E. Pegg. *Editorial Board:* W. Almers, M. P. Blaustein, J. J. Blum, M. M. Civan, D. R. DiBona, P. B. Dunham, M. Endo, A. Fabiato, F. Fay, J. R. Florini, G. N. Gill, H. Green, R. B. Gunn, D. J. Hartshorne, E. Heinz, S. M. Heywood, E. Homsher, U. Hopfer, K. Jacobson, R. S. Katzenellenbogen, G. Kimmich, R. K. H. Kinne, J. F. Lamb, P. C. Laris, H. Lecar, C. O. Lee, J. E. Lever, L. J. Mandel, P. P. McCann, F. Morel, G. E. Mortimore, R. A. Murphy, V. T. Nachmias, J. M. Oliver, J. C. Parker, H. Passow, A. H. Reddi, J. P. Reeves, L. Reuss, K. Robinson, A. Rothstein, E. Rozengurt, E. Ruoslahti, F. Solomon, A. H. Tashjian, Jr., Z. Werb, S. H. White, E. M. Wright

AJP: Endocrinology and Metabolism

Editor: E. Knobil. *Associate Editors:* R. N. Bergman, M. F. Dallman, L. S. Jefferson, J. D. Neill, J. M. Olefsky, W. Tong. *Editorial Board:* A. Arimura, D. T. Armstrong, G. D. Aurbach, J. Avruch, C. W. Bardin, C. A. Barracough, L. E. Braverman, G. A. Bray, M. P. Czech, H. F. DeLuca, A. Dunn, H. A. Eder, L. L. Ewing, J. H. Exton, P. Felig, R. E. Fellows, I. B. Fritz, L. A. Frohman, G. M. Grodsky, J. N. Hayward, G. J. Hetenyi, Jr., J. Himms-Hagen, R. L. Hintz, L. Jarett, D. T. Krieger, R. L. Malvin, E. B. Marliss, R. E. McCaa, S. M. McCann, C. S. Nicoll, D. Novin, A. E. Pegg, D. Rabin, G. L. Robertson, M. Rodbell, A. H. Rubenstein, N. B. Ruderman, L. B. Salans, H. H. Samuels, A. H. Tashjian, Jr., F. W. Turek, M. Vranic, G. C. Weir, J. R. Williamson, R. Zak

AJP: Gastrointestinal and Liver Physiology

Editor: L. R. Johnson. *Associate Editors:* E. L. Forker, M. J. Jackson, G. Sachs, J. H. Szurszewski. *Editorial Board:* S. A. Adibi, N. C. Anderson, Jr., T. Berglinth, J. Christensen, J. Connor, M. Field, J. G. Forte, R. A. Frizzell, J. D. Gardner, J.-B. Gonella, S. J. Hersey, U. Hopfer, N. Kaplowitz, R. Lester, M. J. Lewin, L. M. Lichtenberger, G. M. Makhlouf, H. Murer, H. N. Nellans, J. D. Ostrow, D. W. Powell, C. Roman, R. C. Rose, H. P. Schedl, I. Schulz, A. P. Shepherd, Jr., Y.-F. Shiao, A. H. Soll, T. E. Solomon, A. P. Somlyo, J. G. Spenney, J. Watkins, N. Weisbrodt, H. O. Wheller, J. A. Williamson, E. M. Wright

AJP: Heart and Circulatory Physiology

Editor: E. Page. *Associate Editors:* N. R. Alpert, E. O. Feigl, H. A. Fozard, W. R. Gibbons, J. R. Neely. *Editorial Board:* J. B. Bassingthwaite, M. J. Brody, A. M. Brown, P. B. Corr, A. Fabiato, L. E. Ford, D. M. Griggs, Jr., F. J. Haddy, A. Hjalmarson, J. S. Ingwall, H. A. Kontos, H. Kuriyama, K. F. LaNoue, A. B. Malik, J. B. McMillin-Wood, E. Morpinkin, S. Oparil, D. J. Patel, P. I. Polimeni, E. M. Renkin, M. J. Rovetto, R. Rubio, L. A. Sordahl, H. V. Sparks, Jr., N. C. Staub, P. M. Vanhoute, J. L. Walker, Jr., A. M. Watanabe, W. B. Weglicki, J. R. Williamson, R. Zak

AJP: Regulatory, Integrative and Comparative Physiology

Editor: F. E. Yates. *Associate Editors:* J. J. Di Stefano III, W. H. Dantzler, C. S. Pittendrigh, D. O. Walter. *Editorial Board:* F. C. Bartter, A. E. Baeu, J. A. Boulant, G. Bray, R. D. Bunag, G. F. Cahill, Jr., F. R. Calaresu, D. S. Gann, F. P. Gibbs, C. H. Heller, A. S. Iberall, P. R. McHugh, M. C. Moore-Ede, H. Nishimura, D. Novin, J. E. Phillips, D. J. Ramsay, O. E. Reynolds, W. H. Sawyer, W. B. Severs, O. A. Smith. *Modeling Methodology Forum:* J. J. DiStefano III, M. Berman, E. Carson, C. Cobelli, K. Godfrey, G. Hetenyi, Jr., E. Landaw, V. Licko, M. Milanese, M. Normand, W. R. Smith, M. Stefanelli

AJP: Renal, Fluid and Electrolyte Physiology

Editor: T. E. Andreoli. *Associate Editor:* F. S. Wright. *Editorial Board:* B. M. Brenner, W. H. Dantzler, D. D. Fanestil, R. L. Jamison, R. T. Kunau, T. Maack, D. J. Marsh, J. A. Schafer, H. Valtin, M. Walser, D. G. Warnock

Publications Committee of The American Physiological Society
H. E. Morgan, Chairman; R. M. Berne; L. E. Farhi

Publications Manager and Executive Editor: S. R Geiger

Production Manager: B. B. Rauner

Business Manager: W. A. Sonnenberg

Editorial Staff: J. Bloomer, C. Buckley, A. Cahnmann, R. Foust, S. Mann, A. Raefsky, J. Reno, J. Salive, J. Stokes, E. Sutherland

Published monthly by *The American Physiological Society*
9650 Rockville Pike, Bethesda, MD 20814

Copyright © 1982 by the American Physiological Society. Printed in the United States of America by Waverly Press, Inc., Baltimore, MD 21202. The code at the bottom of the first page of an article indicates the copyright owner's consent that copies of an article may be made beyond that permitted by sections 107 and 108 of the U.S. Copyright Law—unless the copies are for general distribution, for advertising, for creating new works, or for resale—provided the per-copy fee is paid through the Copyright Clearance Center, Inc., 21 Congress St., Salem, MA 01970.

Guest Referee Editors

The Publications Committee of the American Physiological Society gratefully acknowledges the services of the following guest referee editors who assisted the Editorial Board in the reviews of manuscripts.

American Journal of Physiology: Cell Physiology

S. J. Ashcroft	K. E. Flaim	P. Lacy	H. Shichi
N. Baeniger	J. N. Forrest	M. Lang	C. Slayman
R. S. Balaban	E. T. Fossel	K. F. LaNoue	T. Smith
D. M. Baldwin	J. C. Freedman	P. K. Lauf	L. A. Sordahl
M. Bersohn	E. Gallin	S. D. Levine	N. Sperelakis
S. P. Bishop	S. Gluck	M. Lipchitz	J. Spitzer
F. Booth	S. Goldfarb	W. J. Longmore	Y. Tai
N. Brautbar	S. R. Goodman	J. M. Lowenstein	A. N. Taylor
J. S. Brody	F. M. Griffin	R. Macey	A. M. Thompson
G. Brooker	C. N. Hales	F. Manasek	R. G. Thurman
F. R. Butcher	M. Hammerman	R. Mason	M. Tischler
O. A. Candia	M. Hardy	D. J. Massaro	J. T. Tupper
D. A. Carson	R. Hays	F. Matschinsky	R. J. Turner
V. Castranova	E. J. Herbst	E. K. Matthews	G. V. Vahouny
F. Y. Chen	S. D. Hillyard	D. V. Maudsley	J. Valentich
J. M. Chevalier	J. S. Ingwall	D. Misfeldt	W. G. Van der Kloot
R. J. Connell	L. L. Iverson	H. N. Nellans	J. M. Vanderkooi
J. D. Crapo	W. Jacobus	M. C. Neville	J. B. Wade
S. Crie	E. Jakobson	R. J. Paul	R. H. Wasserman
M. T. Crow	J. A. Johnson	D. W. Powell	C. A. Watkins
H. Cserr	W. A. Kachadorian	J. W. Putney, Jr.	W. Weglicki
C. W. Davis	M. S. Kafka	J. L. Rae	N. Weiner
P. F. Dillon	R. King	D. E. Rannels, Jr.	J. G. White
R. Dons	N. Kirschner	H. Rasmussen	C. C. Widnell
M. Erecinska	A. Kleinzeller	R. A. Rhoades	J. A. Williams
J. L. Eveloff	M. A. Knepper	R. C. Rose	J. R. Williamson
J. H. Exton	F. G. Knox	R. L. Sanders	R. Woledge
M. B. Feinstein	T. Kono	A. Scarpa	D. M. Woodbury
M. Field	L. T. Kremzner	J. A. Schafer	R. Zak
A. B. Fisher			

American Journal of Physiology: Endocrinology and Metabolism

N. Abumrad	A. K. Christensen	S. Flaim	M. R. C. Greenwood
K. G. M. Alberti	R. D. Cohen	J. P. Flatt	E. Gresik
J. M. Amatruda	R. J. Connell	A. M. Fogelman	G. G. Guidotti
J. Axelrod	D. P. Cook	D. O. Foster	M. L. Halperin
S. Balagura	D. L. Costill	R. A. Freedland	J. B. Halter
P. L. Ballard	P. E. Cryer	R. H. Freeman	R. W. Hanson
A. Balsam	R. T. Curnow	M. Fregly	J. A. K. Harmony
K. L. Barker	M. P. Czech	H. G. Friesen	A. E. Harper
J. Beard	J. R. Davis	L. A. Frohman	R. A. Harris
N. Beck	S. L. Davis	C. A. Fuller	R. Hawkins
E. N. Bergman	J. M. Dietschy	C. C. Gale	M. W. Haymond
D. M. Biddulph	J. H. Dirks	R. V. Gallo	H. G. Hers
D. Bier	J. A. Duerre	S. Ganguli	G. J. Hetenyi, Jr.
E. G. Biglieri	R. V. Edgerton	D. S. Gann	J. P. Heyback
J. R. Blinks	M. El Refai	W. F. Ganong	J. Himms-Hagen
J. Blum	L. J. Elsas, III	P. J. Garlick	P. Hjemdahl
D. Bohr	W. C. Engeland	T. D. Gelehrter	M. F. Holick
P. R. Borum	C. F. Erickson	J. E. Gerich	M. Hollenberg
J. Bremer	J. H. Exton	G. Giannopoulos	J. O. Holloszy
J. H. Brown	J. N. Fain	F. P. Gibbs	B. A. Howitz
A. C. Brownie	D. D. Fanestil	J. P. Gilmore	W. A. Hsueh
I. Burr	R. Farley	J. Gliemann	M. H. Humphreys
E. R. Buskirk	P. Felig	A. L. Goldberg	J. Izzo
D. E. Carlson	A. C. Fellenius	H. M. Goodman	R. Jaspan
T. Chan	C. J. Fielding	M. N. Goodman	B. Jeanrenaud
A. Cherrington	C. A. Finch	C. J. Goodner	J. M. Johnston
J. L. Chiasson	K. Flaim	M. S. Greenfield	R. L. Jungas

C. R. Kahn	D. Marver	R. Rabkin	E. M. Stricker
R. K. Kalkhoff	S. G. Massry	L. G. Raisz	R. K. Studer
H. Kaslow	S. Mayer	D. J. Ramsay	R. W. Swick
J. Katz	A. McDonough	D. E. Rannels	A. J. Szabo
R. E. Keesey	J. C. Melby	I. A. Reid	G. Taborsky
W. N. Kelley	S. Metz	J. A. Resko	C. Thompson
A. D. Kenny	J. B. Miller	T. R. Riggs	M. O. Thorner
P. L. Keyes	R. E. Miller	J. A. Rillema	G. C. Tremblay
J. M. Kinney	T. B. Miller, Jr.	R. P. Robertson	J. L. Turgeon
F. Knox	D. J. Millward	M. Rodbell	G. R. Van Loon
O. Kolterman	W. E. Mitch	E. M. Ross	L. Van Middlesworth
T. Kono	C. E. Mondon	N. B. Ruderman	J. L. Voogt
F. Labrie	C. M. Moriarty	B. Sacktor	M. Vranic
K. LaNoue	G. E. Mortimore	L. B. Salans	C. E. Wade
J. A. Leblanc	A. M. Moses	H. A. Salmick	G. N. Wade
S. R. Levin	B. C. Moulton	J. Schwartz	D. O. Walter
S. Levine	N. D. Neufeld	N. B. Schwartz	R. H. Wasserman
D. Levy	A. W. Norman	O. A. Scornik	M. Watford
J. B. Li	D. Novin	S. Segal	R. F. Weick
L. Lipson	D. A. Ontjes	M. K. Selmanoff	C. W. Wilkinson
J. N. Livingston	D. Orth	R. S. Sherwin	J. A. Williams
R. B. Low	O. E. Owen	R. P. Shiu	J. R. Williamson
P. V. Malven	W. M. Pardridge	E. A. Sims	P. M. Wise
M. S. Manku	S. J. Pilks	R. J. Solaro	R. R. Wolfe
E. B. Marliss	T. M. Plant	J. J. Spitzer	V. R. Young
J. B. Marsh	D. Porte	M. J. Stock	R. Zak
J. B. Martin	G. A. Quamme	G. J. Strewler	

American Journal of Physiology: Gastrointestinal and Liver Physiology

P. Aisen	R. Ecknauer	J. Krier	G. A. Scheele
D. H. Alpers	V. F. Fairbanks	P. R. Kvietys	L. D. Scott
W. Armstrong	M. Feldman	D. B. N. Lee	C. Seidel
J. A. Barrowman	G. Flémstrom	J. S. Lee	E. R. Seidel
P. Bass	J. E. T. Fox	S. Leeman	G. Semenza
I. T. Beck	T. S. Gaginella	G. M. Levine	L. L. Shanbour
S. Bennett Clark	M. C. Geokas	M. D. Levitt	J. T. Snook
P. Biancani	A. M. Goldner	C. Liebow	G. R. Speir
H. J. Binder	R. J. Grand	J. F. Long	S. J. Strada
H. G. Bohlen	D. N. Granger	T. E. Machen	E. Straus
A. Bortoff	H. J. Granger	A. N. Majumdar	Y.-H. Tai
K. L. Bowes	J. H. Grendell	J. R. Malagelada	A. E. Taylor
F. Bronner	J. J. Gumucio	D. Malinowska	I. Taylor
T. F. Burks	P. Gunter-Smith	R. A. Malt	G. Telford
W. Y. Chey	P. H. Guth	D. McCarthy	B. L. Tepperman
C. C. Chou	J.-J. Hajjar	J. H. Meyer	J. Thompson
C. F. Code	S. J. Henning	T. A. Miller	W. J. Thompson
S. Cohen	B. I. Hirschowitz	F. G. Moody	J. E. Valenzuela
M. E. Conrad	L. E. Hokin	K. G. Morgan	W. A. Walker
A. R. Cooke	K. A. Hubel	J. Morisset	J. H. Walsh
R. J. Cousins	Z. Itoh	R. Paul	L. W. Way
E. E. Daniel	B. M. Jaffe	M. Reich	W. A. Weerns
H. T. Debas	P. C. Johnson	E. Richelson	E. Weser
J. Dedman	A. L. Jones	A. Robert	J. F. Williams
H. F. DeLuca	K. A. Kelly	G. C. Rosenfeld	F. A. Wilson
R. Dickson	R. A. Kenney	S. S. Rothman	D. L. Wingate
E. P. DiMaggio	G. W. Kidder	S. I. Said	H. R. Wyssbrod
D. E. Donald	R. Kinne	K. M. Sanders	W. M. Yau
T. P. Dousa	O. Koldovsky	S. K. Sarna	A. R. Zinsmeister
N. G. Durdle	J. A. Krasny	D. Schachter	

American Journal of Physiology: Heart and Circulatory Physiology

F. M. Abboud	M. Barany	S. P. Bishop	L. M. Buja
T. Akiyama	A. C. Barger	V. S. Bishop	F. M. Bumpus
N. Alexander	C. M. Baumgarten	N. Bitar	M. J. Burgess
R. S. Alexander	L. Becker	H. G. Bohlen	A. H. Burns
B. Altura	G. W. Beeler	D. F. Bohr	E. R. Buskirk
P. Anversa	D. R. Bell	A. J. Brady	F. Cararesu
E. O. Attinger	F. L. Belloni	K. L. Brigham	R. M. Carey
C. F. Babbs	K. H. Berecek	H. L. Brooks	M. P. Carpenter
R. J. Baché	R. M. Berne	K. B. Brosnihan	K. J. Catt
D. Ballard	O. H. Bing	N. M. Buckley	B. Chance

S. Chien	H. J. Granger	P. J. Martin	E. M. Scarpelli
R. W. Childers	S. D. Gray	J. B. Martins	M. Scheinman
J. E. Chimosky	J. C. Greenfield, Jr.	R. T. Mathias	A. M. Scher
G. Chisolm	D. Griggs	D. W. Maughan	J. Scheuer
S. Churchill	G. J. Gross	L. Maughan	J. Schrader
F. Cobb	W. Grossman	C. S. McCaa	C. Seidel
I. S. Cohen	R. F. Grover	T. A. McCalden	J. W. Severinghaus
F. Cole	W. G. Guntheroth	P. A. McHale	R. Shabetai
R. L. Coon	A. C. Guyton	M. C. McKenna	M. Sheetz
G. Cooper, IV	B. B. Hamrell	J. N. McNeil	J. T. Shepard
R. L. Coulson	J. Han	G. Meschia	K. I. Shine
A. W. Cowley, Jr.	T. R. Hansen	B. Meyrick	S. B. Shohet
R. H. Cox	J. G. Hardman	H. T. Milhorn	D. J. Skorton
F. E. Curry	P. V. Harper	K. Millar	T. W. Smith
A. Cutilleta	H. B. Hechtman	W. R. Milnor	B. E. Sobel
L. G. D'Alecy	L. L. Hefner	I. Mirsky	J. R. Solaro
D. L. Davis	D. D. Heistad	J. H. Mitchell	J. R. Sommer
J. Diamond	R. Hill	W. Mitzner	A. V. Somylo
J. N. Diana	J. C. Hoak	E. N. Moore	L. A. Sordahl
J. Dobson	B. F. Hoffman	R. A. Murphy	H. V. Sparks
D. E. Donald	J. I. E. Hoffman	P. A. Murray	N. Sperelakis
K. J. Dormer	W. B. Hood, Jr.	A. Nasjletti	N. C. Staub
J. M. Downey	W. C. Hunter	M. A. Nathan	P. D. Stein
S. E. Downing	G. Isenberg	R. D. Nathan	H. L. Stone
S. P. Duckles	W. E. Jacobus	A. S. Nies	H. C. Strauss
B. R. Duling	J. Jalife	A. Noordergraaf	B. Swewicz
W. N. Duran	C. January	R. A. Ollsson	J. P. Szidon
D. L. Eckberg	J. K. Kako	M. B. Pamnani	J. E. Szilagyi
D. I. Edelstone	J. E. Kaplan	S. V. Pande	A. E. Taylor
V. Elharrar	M. B. Kardon	A. R. P. Paterson	M. D. Thames
E. G. Erdos	R. S. Kass	R. G. Paul	O. G. Thilenius
D. Euler	P. G. Katona	B. Pegram	R. J. Traystman
J. J. Faber	R. F. Katona	W. A. Pettinger	J. V. Tyberg
A. C. Fellenius	B. G. Katzung	J. M. Pfeffer	F. Urthaler
S. F. Flaim	M. Kaufman	H. Piene	P. M. Vanhoutte
N. C. Flowers	F. Kavalier	H. P. Pieper	M. Vassalle
J. Folts	J. E. Kendrick	J. J. Pisano	S. F. Vatner
R. D. Foreman	J. Kenyon	G. H. Pollack	J. H. K. Vogel
I. J. Fox	P. Kezdi	C. Polosa	R. Wagner
D. Franklin	E. Kirk	D. V. Priola	D. M. Warshaw
E. D. Frohlich	F. J. Klocke	D. J. Ramsay	P. D. Watson
K. Fronek	H. A. Kontos	W. C. Randall	L. C. Weaver
D. L. Fry	B. Korecky	J. H. G. Rankin	C. R. Webb
E. O. Fuller	F. A. Kuehl, Jr.	J. S. Rankin	N. Weiner
W. H. Gaasch	M. J. Kushmerick	P. M. Rautahajju	D. Whitehorn
K. Gallagher	G. A. Langer	J. P. Reeves	V. W. Whitehorn
W. F. Ganong	B. L. Langille	D. M. Regen	V. Whitman
D. Garfinkel	E. G. Lakatta	I. A. Reid	C. Wiederholm
G. L. Gebber	M. H. Laughlin	K. Reimer	J. R. Williamson
L. A. Geddes	G. C. LeBreton	J. C. Rembert	L. R. Willis
J. M. Gerrard	W. J. Lederer	D. E. Rennels, Jr.	J. T. Willerson
L. S. Gettes	M. N. Levy	D. G. Reynolds	S. R. Winternitz
G. S. Getz	M. M. LeWinter	G. L. Robertson	S. L. Wissig
C. N. Gillis	C. Liang	W. I. Rosenblum	A. L. Wit
J. P. Gilmore	A. J. Liedtke	J. Ross, Jr.	H. Wohlrb
S. W. Glagov	G. E. Lindenmayer	C. F. Rothe	F. C. Yin
S. A. Giantz	S. Lipsius	A. A. Rovick	D. B. Young
G. Glick	J. M. Loeb	A. M. Rudolph	K. L. Zierler
H. L. Goldsmith	J. H. Lombard	B. F. Rusy	B. F. Zimmerman
D. A. Goldstein	L. D. Longo	K. Sagawa	B. G. Zimmerman
S. Goodman	A. MacPhee	H. Sandler	I. H. Zucker
P. M. Gootman	R. D. Manning	W. P. Santamore	M. B. Zucker
C. A. Goresky	M. L. Marcus	A. M. Scanu	B. W. Zweifach
K. L. Gould	T. Marino		

American Journal of Physiology: Regulatory, Integrative and Comparative Physiology

R. Abrams
E. H. Adolph
N. Alexander
J. A. Arruda
R. Atkinson
K. Baldwin
F. Baxter

R. Bergman
L. Bernardis
M. H. Bernstein
K. B. Bischoff
R. Bourdage
J. Brobeck
F. Bronner

C. Code
L. Costanzo
H. Cserr
M. Dahn
E. Danforth
E. Deland
B. Eiseman

J. Eisenman
J. Elliott
J. Eveloff
J. Exton
J. Fain
V. S. Fang
J. Fernstrom

J. Filkins
J. Flatt
D. O. Foster
E. Fromm
G. Gander
D. Garfinkel
G. Gebber
B. Goldman
R. Grant
J. Hansen
L. Hartley
A. D. Hartman
J. Helderman
J. J. Higgins
J. Himms-Hagen
P. Hochachka
J. Holloszy

S. K. Hong
B. Horwitz
C. Johanson
A. Johnson
P. Katona
L. Kirschner
F. Knox
S. Lafiri
L. Landsberg
C. Lee
L. Longo
R. Macaa
R. L. Malvin
J. Manning
S. Massry
R. Miller
R. A. Mitchell

H. E. Morgan
M. E. Morris
R. Murphy
R. Myers
M. Neville
R. Olson
M. Oohkents
R. H. Riddick
D. Romros
N. Rowland
M. Russek
K. Sato
P. Schloerb
L. Schramm
R. Shade
H. P. Sheng
R. Shrier

A. Somlyo
E. Sonnenblick
N. Sperelakis
E. Stear
A. Stirling
E. M. Stricker
A. Sullivan
S. Ulick
G. N. Wade
D. O. Walter
L. Weaver
E. W. Westhead
M. Wolf
R. Wurster
J. Yochim
N. Zinner

American Journal of Physiology: Renal, Fluid and Electrolyte Physiology

R. G. Abramson
Z. S. Agus
Q. Al-Awqati
E. A. Alexander
G. A. O. Alleyne
W. J. Arendhorst
A. I. Arieff
P. S. Aronson
J. A. Arruda
A. D. Baines
N. Bank
D. W. Barfuss
S. L. Bealer
N. Beck
E. Bello-Reuss
T. Berl
R. W. Berliner
C. A. Berry
M. Bia
U. L. T. Biber
E. H. Blaine
R. C. Blantz
J. P. Bonjour
W. F. Boron
J. E. Bourdeau
J. J. Bourgoignie
R. H. Bowman
P. C. Brazy
J. R. Briggs
V. M. Buckalew, Jr.
R. E. Bulger
P. J. Cannon
O. A. Carretero
B. Chance
P. C. Churchill
J. W. Coburn
M. G. Cogan
Jordan J. Cohen
R. E. Colindres
J. D. Conger
L. Costanzo
M. C. L. Cox
R. M. Culpepper
E. E. Daniel
B. B. Davis
J. O. Davis
J. R. Dedman

W. M. Deen
R. DeFrondo
V. W. Dennis
F. R. DeRubertis
D. R. DiBona
G. F. DiBona
W. P. Dubinsky
T. D. DuBose
M. J. Dunn
B. R. Edwards
M. Epstein
L. G. Fine
A. L. Finn
W. Finn
J. N. Forrest
J. C. S. Fray
P. A. Friedman
J. C. Gabel
J. H. Galla
F. J. Gennari
J. Gerber
G. H. Giebisch
J. Y. Gillenwater
L. Goldstein
D. W. Good
C. W. Gottschalk
J. J. Grantham
R. Greger
A. C. Guyton
D. Hall
J. E. Hall
P. V. Halushka
M. R. Hammerman
J. S. Handler
M. Hanley
R. M. Hays
J. P. Hayslett
S. C. Hebert
S. I. Helman
S. K. Hong
M. Horster
S. Howards
H. N. Hulter
H. D. Humes
I. Ichikawa
H. R. Jacobson
S. Julius

A. M. Kahn
G. J. Kaloyanides
A. I. Katz
M. A. Kirschenbaum
S. Klahr
F. G. Knox
J. P. Kokko
G. Kunos
N. A. Kurtzman
H. G. Langford
J. H. Laragh
A. Leaf
C. P. Lechene
J. Lemann, Jr.
S. Levine
N. G. Levinsky
S. L. Linas
B. D. Lindley
M. D. Lifschitz
M. S. Lucci
R. G. Luke
R. L. Malvin
L. J. Mandel
M. Martinez-Maldonado
D. Marver
D. L. Maude
M. Mauer
A. Nasjletti
L. G. Navar
P. Needlemen
D. E. Oken
R. G. O'Neil
S. Oparil
H. W. Overbeck
C. S. Patlak
L. M. Peterson
W. A. Pettinger
D. W. Plotz
G. A. Porter
H. G. Preuss
J. B. Puschett
L. Rabinowitz
H. Rasmussen
F. C. Rector, Jr.
H. J. Reineck
B. R. Rennick
G. L. Robertson

P. R. Rogenes
S. G. Rostand
G. Sachs
H. Sackin
B. Sacktor
R. Safirstein
W. H. Sawyer
M. Schambelan
D. Schlondorff
E. G. Schneider
S. G. Schultz
G. Schwartz
J. H. Schwartz
A. Sebastian
S. Segal
D. W. Seldin
L. Share
P. Silva
M. Silverman
E. Slatopolsky
H. Sonnenberg
K. R. Spring
T. H. Steele
J. H. Stein
P. R. Steinmetz
J. Stokes
L. C. Stoner
W. N. Suki
R. L. Tannen
G. Tanner
S. M. Thompson
A. J. Vander
E. D. Vaughn, Jr.
J. B. Wade
C. O. Watlington
I. M. Weiner
E. J. Weinman
R. Weiss
M. J. Welsh
G. Whittembury
C. Wilcox
L. R. Willis
N. Wills
E. E. Windhager
E. M. Wright
K. L. Zierler
R. M. Zusman

Contents of Volume 242

American Journal of Physiology

**American Journal of Physiology:
Cell Physiology**

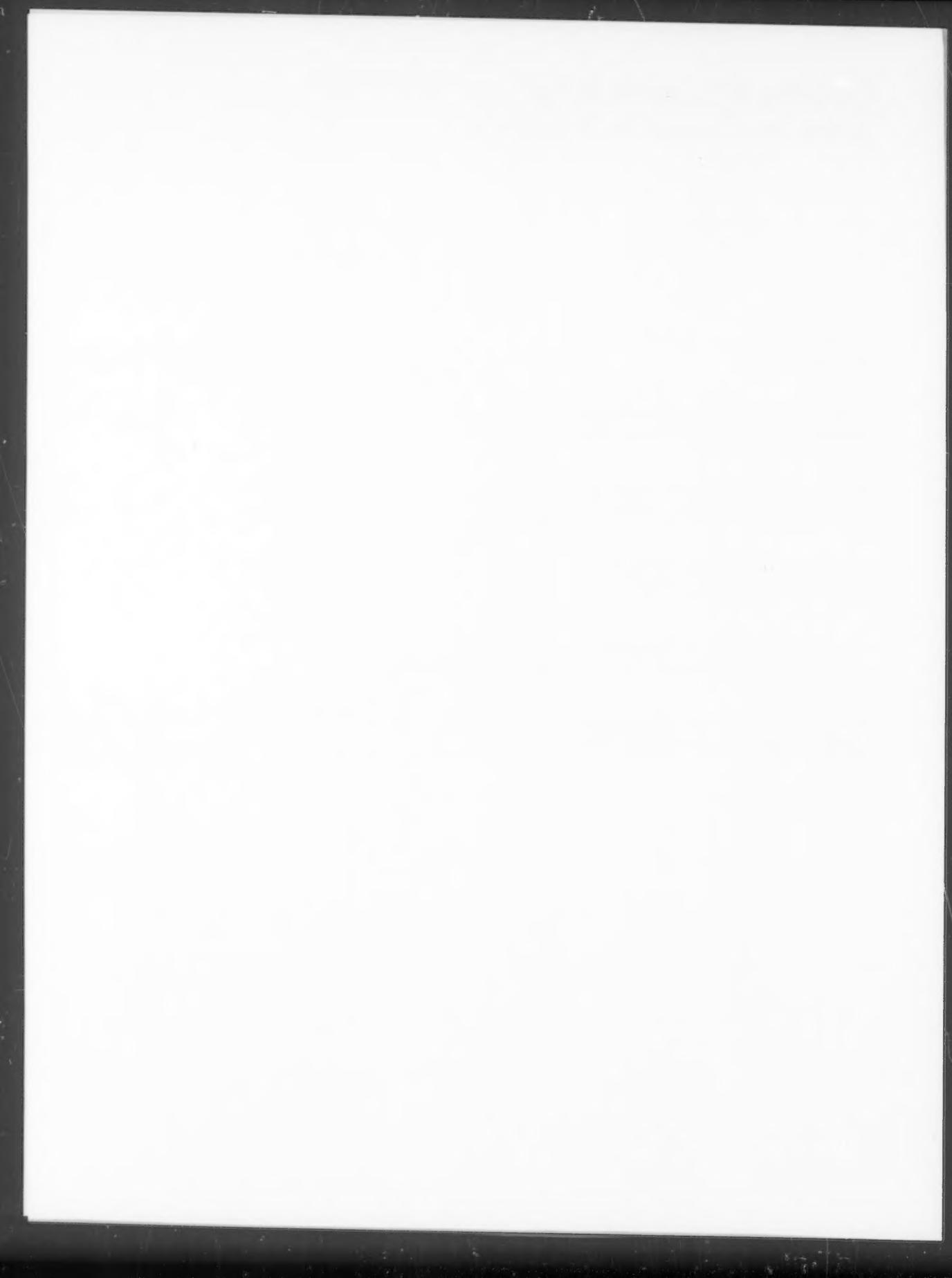
**American Journal of Physiology:
Endocrinology and Metabolism**

**American Journal of Physiology:
Gastrointestinal and Liver Physiology**

**American Journal of Physiology:
Heart and Circulatory Physiology**

**American Journal of Physiology:
Regulatory, Integrative and Comparative Physiology**

**American Journal of Physiology:
Renal, Fluid and Electrolyte Physiology**



American Journal of Physiology: Cell Physiology

No. 1. JANUARY 1982

EDITORIAL REVIEW

- Application of ^{31}P -NMR spectroscopy to the study of striated muscle metabolism
R. A. Meyer, M. J. Kushmerick, and T. R. Brown

C1

Hyperpolarization of mammalian skeletal muscle fibers in K-free media <i>N. Akaike</i>	C12
Mechanics and energetics of muscle contraction in normal and dystrophic chickens <i>W. J. Polinski and J. A. Rall</i>	C19
Contraction of arterial smooth muscle induced by magnesium ions <i>T. Ohhashi and T. Azuma</i>	C25
Mucociliary frequency of frog palate epithelium <i>E. Puchelle, J.-M. Zahm, and P. Sadoul</i>	C31
Depolarization-induced contractile activity of smooth muscle in calcium-free solution <i>A. W. Mangel, D. O. Nelson, J. L. Rabovsky, C. L. Prosser, and J. A. Connor</i>	C36
Metabolism of L-lactate by LLC-PK ₁ renal epithelia <i>J. M. Mullin, C.-J. M. Cha, and A. Kleinzeller</i>	C41
Effects of butyrate on ouabain-sensitive respiration of hamster brown adipocytes <i>M. E. O'Donnell and B. A. Horwitz</i>	C46
Development of contractile properties in avian embryonic skeletal muscle <i>P. J. Reiser and B. T. Stokes</i>	C52
Effects of a thioreactive agent, diamide, on neuromuscular transmission in lobster <i>C. A. Colton and J. S. Colton</i>	C59
Muscle fatigue with prolonged exercise: contractile and biochemical alterations <i>R. H. Fitts, J. B. Courtright, D. H. Kim, and F. A. Witzmann</i>	C65
Erythrocyte permeability to lipophilic solutes changes with temperature <i>R. A. Garrick, B. C. Patel, and F. P. Chinard</i>	C74
Potassium transport by rabbit descending colon <i>R. McCabe, H. J. Cooke, and L. P. Sullivan</i>	C81
Intracellular pH mediates action of insulin on glycolysis in frog skeletal muscle <i>M. L. Fidelman, S. H. Seeholzer, K. B. Walsh, and R. D. Moore</i>	C87
Development of Na ⁺ -dependent hexose transport in a cultured line of porcine kidney cells <i>K. Amsler and J. S. Cook</i>	C94
Tonic force maintenance with reduced shortening velocity in arterial smooth muscle <i>P. F. Dillon and R. A. Murphy</i>	C102
Role of Ca ²⁺ and myosin light chain phosphorylation in regulation of smooth muscle <i>M. O. Aksoy, R. A. Murphy, and K. E. Kamm</i>	C109

RAPID COMMUNICATIONS

Binding of peanut lectin to specific epithelial cell types in kidney <i>M. LeHir, B. Kaissling, B. M. Koeppen, and J. B. Wade</i>	C117
Insulin stimulation of Na ⁺ transport and glucose metabolism in cultured kidney cells <i>M. L. Fidelman, J. M. May, T. U. L. Biber, and C. O. Watlington</i>	C121
Cytosolic free calcium levels in rabbit proximal kidney tubules <i>E. Murphy and L. J. Mandel</i>	C124

ANNOUNCEMENTS

C129

EDITORIAL REVIEW

Amiloride: a molecular probe of sodium transport in tissues and cells

D. J. Benos

C131

Transient responses and continuous behavior of active smooth muscle during controlled stretches

R. A. Meiss

C146

Impairment of tropic response of brown fat to cold in guanethidine-treated rats

G. Mory, D. Ricquier, M. Nechad, and P. Hemon

C159

Reconstitution of D-glucose transporter from human placental microvillous plasma membranes

J. M. Bissonnette, J. A. Black, K. L. Thornburg, K. M. Acott, and P. L. Koch

C166

Hormone-induced changes in NADH fluorescence and O₂ consumption of rat hepatocytes*R. S. Balaban and J. J. Blum*

C172

Stretch-induced growth in chicken wing muscles: effects on hereditary muscular dystrophy

C. R. Ashmore

C178

Bath osmolality: effect on water permeability of epithelial tissue

Y. T. Lau, R. H. Parsons, G. A. Feeney, and K. L. Walker

C184

Effects of ATP on lysosomes: inhibition of the loss of latency caused by cooling

R. C. Ruth and W. B. Weglicki

C192

Separation of carotid body chemoreceptor responses to O₂ and CO₂ by oligomycin and by antimycin A*E. Mulligan and S. Lahiri*

C200

Chloride self-exchange in toad skeletal muscle in vivo and in vitro

D. D. Macchia

C207

Metabolite changes in individual rat muscle fibers during stimulation

*C. S. Hintz, M. M.-Y. Chi, R. D. Fell, J. L. Ivy,**K. K. Kaiser, C. V. Lowry, and O. H. Lowry*

C218

Differentiated function in cultured epithelia derived from thick ascending limbs

M. Burg, N. Green, S. Sohraby, R. Steele, and J. Handler

C229

Myosin light chain phosphorylation-dephosphorylation in mammalian skeletal muscle

D. R. Manning and J. T. Stull

C234

Influence of ATP on sarcoplasmic reticulum function of vascular smooth muscle

G. D. Ford and M. L. Hess

C242

Catecholamine sensitivity in brown fat cells from cold-acclimated hamsters and rats

J. Nedergaard

C250

ANNOUNCEMENTS

C258

Contractile properties of hindlimb muscles in rat during surgical overload

P. L. Freeman and A. R. Luff

C259

Optical measurements of oxygen delivery and consumption in gerbil cerebral cortex

C. L. Bashford, C. H. Barlow, B. Chance, J. Haselgrave, and J. Sorge

C265

Role of the motor nerve in activity-induced enzymatic adaptation in skeletal muscle

J. Henriksson, H. Galbo, and E. Blomstrand

C272

Ca²⁺ dependence of calcium uptake by rat myometrium plasma membrane-enriched fraction*A. K. Grover, C. Y. Kwan, and E. E. Daniel*

C278

Maximal force potential of tetanized mammalian smooth muscle

N. L. Stephens and D. L. Brutsaert

C283

Sodium-calcium exchange and sarcolemmal enzymes in ischemic rabbit hearts

M. M. Bersohn, K. D. Philipson, and J. Y. Fukushima

C288

Effects of sodium on β -cell electrical activity <i>B. Ribalet and P. M. Beigelman</i>	C296
Effect of temperature, nutrients, calcium, and cAMP on motility of human spermatozoa <i>F. K. Gorus, R. Finsy, and D. G. Pipeleers</i>	C304
Effects of 1,25-(OH) ₂ D ₃ administered in vivo on phosphate uptake by isolated chick renal cells <i>C. T. Liang, J. Barnes, L. Cheng, R. Balakir, and B. Sacktor</i>	C312
Magnesium increases rate of onset of desensitization in frog muscle <i>A. A. Manthey</i>	C319
Influence of glucose on Ehrlich cell volume, ion transport, and membrane potential <i>P. C. Laris and G. V. Henius</i>	C326
Regression of skeletal muscle of chicken wing after stretch-induced hypertrophy <i>M. P. Sparrow</i>	C333
Macrophage phagocytosis: analysis of particle binding and internalization <i>J. M. Besterman, J. A. Airhart, and R. B. Low</i>	C339
Effects of 2-n-butyl-methylenedioxyindene on skeletal muscle mechanics and energetics <i>D. M. Burchfield, J. A. Rall, and R. G. Rahwan</i>	C347
Spontaneous sweat secretion in calcium-free strontium medium <i>K. Sato and F. Sato</i>	C353
Transepithelial potential during strontium-induced spontaneous sweating <i>K. Sato and F. Sato</i>	C360
Influence of presynaptic receptors on neuromuscular transmission in rat <i>D. F. Wilson</i>	C366
Type IIB to IIA fiber transformation in intermittently stimulated rabbit muscles <i>K. Mabuchi, D. Szvetko, K. Pintér, and F. A. Sréter</i>	C373
Glucose-induced proton uptake in secretory granules of β -cells in monolayer culture <i>C. S. Pace and G. Sachs</i>	C382
Structure of tight junctions during Cl ⁻ secretion in the perfused rectal gland of the dogfish shark <i>J. N. Forrest, Jr., J. L. Boyer, T. A. Ardito, H. V. Murdaugh, Jr., and J. B. Wade</i>	C388
Production of ornithine by intact human erythrocytes <i>J. A. Williams and J. M. Phang</i>	C393
Release of creatine kinase from frog muscle by osmotic changes <i>G. Suarez-Kurtz</i>	C398

RAPID COMMUNICATIONS

A simple method for the accurate determination of free [Ca] in Ca-EGTA solutions <i>D. M. Bers</i>	C404
---	------

ANNOUNCEMENTS

<i>Subject Index to Volume 11</i>	C411
<i>Author Index to Volume 11</i>	C415

CORRIGENDA

Volume 242, January 1982
Volume 11, January 1982

Page C41: J. M. Mullin, C.-J. M. Cha, and A. Kleinzeller. "Metabolism of L-lactate by LLL-PK₁ renal epithelia." *Page C43:* DISCUSSION, second sentence should read: Glutamate then serves as the amino donor in transaminations to yield alanine, which derives its [¹⁴C]labeled carbons from pyruvate, and from aspartate, which then feeds into urea synthesis.

American Journal of Physiology: Endocrinology and Metabolism

No. 1. JANUARY 1982

Amino acid supply to individual cerebral structures in awake and anesthetized rats <i>R. A. Hawkins, A. M. Mans, and J. F. Biebuyck</i>	E1
Insulin resistance for glucose metabolism in disused soleus muscle of mice <i>M. J. Seider, W. F. Nicholson, and F. W. Booth</i>	E12
Effect of insulin on fat and protein deposition in diabetic lean and obese rats <i>C. P. Chan, L. J. Koong, and J. S. Stern</i>	E19
Muscle glycogenolysis during exercise: dual control by epinephrine and contractions <i>E. A. Richter, N. B. Ruderman, H. Gavras, E. R. Belur, and H. Galbo</i>	E25
Role of thyroxine in coordinate control of corticosterone and CBG in postnatal development <i>J. B. D'Agostino and S. J. Henning</i>	E33
Rapid fluctuations in plasma catecholamines in monkeys under undisturbed conditions <i>B. C. Hansen, G. P. Schielke, K.-L. C. Jen, R. A. Wolfe, H. Movahed, and S. B. Pek</i>	E40
Regulation of calcium-binding protein in mouse placenta and intestine <i>M. E. H. Bruns, V. Wallshein, and D. E. Bruns</i>	E47
Effects of amino acids and gastric inhibitory polypeptide on insulin release in dogs <i>J. G. Yovos, T. M. O'Dorisio, T. N. Pappas, S. Cataland, F. B. Thomas, H. Mekhjian, and L. C. Carey</i>	E53
Evidence for two distinct modalities of Ca^{2+} influx into pancreatic B cell <i>P. Lebrun, W. J. Malaisse, and A. Herchuelz</i>	E59
Regulation of α -ketoisocaproate binding to albumin in vivo by free fatty acids <i>S. L. Nissen, J. M. Miles, J. E. Gerich, and M. W. Haymond</i>	E67
ANNOUNCEMENTS	E72

No. 2. FEBRUARY 1982

Transient hepatic response to glucagon in man: role of insulin and hyperglycemia <i>E. Ferrannini, R. A. DeFronzo, and R. S. Sherwin</i>	E73
Rate of bone loss in postmenopausal and osteoporotic women <i>J. F. Aloia, P. Ross, A. Vaswani, I. Zanzi, and S. H. Cohn</i>	E82
Arginine metabolism and urea synthesis in cultured rat skeletal muscle cells <i>W. M. Pardridge, L. Duducian-Vartavarian, D. Casanello-Ertl, M. R. Jones, and J. D. Kopple</i>	E87
Alterations in rat adipose tissue morphology induced by a low-temperature environment <i>W. H. Miller, Jr. and I. M. Faust</i>	E93
Insulin as a mediator of hepatic glucose uptake in the conscious dog <i>A. D. Cherrington, P. E. Williams, N. Abou-Mourad, W. W. Lacy, K. E. Steiner, and J. E. Liljenquist</i>	E97
Comparison of canine corticosteroid responses to mean and phasic increases in ACTH <i>C. E. Wood, J. Shinsako, and M. F. Dallman</i>	E102
Evidence that TRH stimulates secretion of TSH by two calcium-mediated mechanisms <i>E. J. Geras and M. C. Gershengorn</i>	E109
Mechanism of hyperinsulinemia after reticuloendothelial system phagocytosis <i>J. P. Filkins and M. R. Yelich</i>	E115
Theophylline-estrogen interaction in the rat uterus: role of the ovary <i>J. Steinsapir, A. M. Rojas, and A. Tchernitchin</i>	E121

- Circadian profiles of insulin receptors in insulin-dependent diabetics in usual and poor metabolic control
O. Pedersen, E. Hjøllund, H. O. Lindskov, H. Beck-Nielsen, and J. Jensen

E127

No. 3. MARCH 1982

- Ionomycin stimulates secretion of catecholamines from cat adrenal gland and spleen
M. H. Carvalho, J. C. Prat, A. G. Garcia, and S. M. Kirpekar

E137

- Influence of parathyroid state on calcium uptake in bone
G. J. Lemon, J. B. Bassingthwaighe, and P. J. Kelly

E146

- Renal parathyroid hormone receptors in the chick: downregulation in secondary hyperparathyroid animal models

L. R. Forte, S. G. Langeluttig, R. E. Poelling, and M. L. Thomas

E154

- Electrophysiologic correlates of steroid modulation of luteinizing hormone release
P. C. K. Leung, D. I. Whitmoyer, and C. H. Sawyer

E164

- Urinary excretion of arterial blood prostaglandins and thromboxanes in man
R. D. Zipser and K. Martin

E171

- 20 α -Hydroxysteroid dehydrogenase and 17 β -estradiol dehydrogenase localize in cytosol of human term placenta

R. C. Strickler and B. Tobias

E178

- Effects of glucose, pyruvate, lactate, and amino acids on muscle protein synthesis
M. P. Hedden and M. G. Buse

E184

- Intracellular Na⁺ and K⁺ activities during insulin stimulation of rat soleus muscle
R. J. Stark and J. O'Doherty

E193

- Responses of ram lambs to active immunization against testosterone and lutenizing hormone-releasing hormone

B. D. Schanbacher

E201

- Calcitonin modulation of insulin and glucagon secretion in man

D. Giugliano, N. Passariello, S. Sgambato, R. Torella, and F. D'Onofrio

E206

No. 4. APRIL 1982

- Developmental aspects of pituitary and adrenal responses to arterial hypotension in neonatal, weanling, and adult sheep
J. C. Rose, M. Morris, and P. J. Meis

E215

- Development of pancreatic and plasma insulin in prenatal and suckling Zucker rats
I. J. Turkenkopf, P. R. Johnson, and M. R. C. Greenwood

E220

- Autoregulation of rat pituitary prolactin secretion demonstrated by a new perfusion method

H. A. Zucar, W. E. Mitch, J. E. Tyson, P. T. Ostrow, and G. V. Foster

E226

- Relation of insulin receptor occupancy and deactivation of glucose transport
H. U. Häring, E. Biermann, and W. Kemmler

E234

- Chronic sodium deficit in the immature rat: its effect on adaptation to sodium excess

A. Aviv, T. Kobayashi, H. Higashino, J. W. Bauman, Jr., and S. S. Yu

E241

- Free fatty acid mobilization in rats following intracerebroventricular norepinephrine
M. C. Barbosa and R. H. Migliorini

E248

- Reduced norepinephrine turnover in brown adipose tissue of ob/ob mice
A. W. Knehans and D. R. Romsos

E253

- Effect of vasoactive intestinal polypeptide on glycogen metabolism in rat hepatocytes
C. L. Wood and J. J. Blum

E262

- Energy balance of rats with lateral hypothalamic lesions
S. W. Corbett and R. E. Keesey

E273

- Sham feeding-induced cephalic phase insulin release in the rat
H. R. Berthoud and B. Jeanrenaud

E280

ANNOUNCEMENTS

E286

No. 5. MAY 1982

Parathyroid, renal, and skeletal responses to induced hypocalcemia in the dog <i>J. Fox and H. Heath III</i>	E287
Evidence for renin in rat brain: differentiation from other reninlike enzymes <i>V. J. Dzau, A. Brenner, and N. L. Emmett</i>	E292
Measurement of blood flow in pancreatic islets of the rat: effect of isoproterenol and norepinephrine <i>H. H. Meyer, F. Vetterlein, G. Schmidt, and A. Hasselblatt</i>	E298
Mineralocorticoid activity of 19-nor-DOC and 19-OH-DOC in adrenalectomized rat <i>R. D. Perrone, H. H. Bengale, S. L. Dale, J. C. Melby, and E. A. Alexander</i>	E305
Metabolic response of normal man and insulin-infused diabetics to postprandial exercise <i>J. D. Nelson, P. Poussier, E. B. Marliss, A. M. Albisser, and B. Zinman</i>	E309
Morphine suppresses plasma catecholamine responses to laparotomy but not to 2-deoxyglucose <i>G. J. Taborsky, Jr., J. B. Halter, and D. Porte, Jr.</i>	E317
Modulation by adrenalectomy and fasting of insulin effects in perfused hindlimb muscle <i>H. Shikama, D. T. W. Chu, and J. H. Exton</i>	E323
Hormonal changes associated with hypertension in neoplasia-induced hypercalcemia <i>J. R. Sowers and J. D. Barrett</i>	E330
Responses to mixed meals in pancreatectomized dogs deprived of postprandial insulin <i>Y. Goriya, A. Bahoric, E. B. Marliss, B. Zinman, and A. M. Albisser</i>	E335
Interaction of arginine and gastric inhibitory polypeptide on insulin release in man <i>D. Elahi, G. S. Raizes, R. Andres, R. J. Hershcopf, D. C. Muller, J. D. Tobin, and D. K. Andersen</i>	E343

No. 6. JUNE 1982

Brown adipose tissue hyperplasia: a fundamental mechanism of adaptation to cold and hyperphagia <i>L. Bukowiecki, A. J. Collet, N. Follea, G. Guay, and L. Jahjah</i>	E353
Cold acclimation in insulin secretion of isolated perfused pancreas of the rat <i>E. Harada, Y. Habara, and T. Kanno</i>	E360
Glucose transport in adipocytes and its control by growth hormone in vivo <i>E. Schoenle, J. Zapf, and E. R. Froesch</i>	E368
Potassium homeostasis during hyperinsulinemia: effect of insulin level, β -blockade, and age <i>K. L. Minaker and J. W. Rowe</i>	E373
Thyroid hormones, malnutrition, and biochemical composition of developing rat lung <i>J. Ruel, P. Coulombe, and J. H. Dussault</i>	E378
Glucocorticoids and hypothyroidism modulate development of fetal lung insulin receptors <i>S. U. Devaskar, S. Ganguli, U. P. Devaskar, and M. A. Sperling</i>	E384
Estradiol stimulation of LH response to LHRH and LHRH binding to pituitary cultures <i>L. K. Tang, A. C. Martellock, and J. K. Horiuchi</i>	E392
Absorption and disposition of a glucose load in the conscious dog <i>N. N. Abumrad, A. D. Cherrington, P. E. Williams, W. W. Lacy, and D. Rubin</i>	E398
Effect of exercise on rates of oxidation, turnover, and plasma clearance of leucine in human subjects <i>S. A. Hagg, E. L. Morse, and S. A. Adibi</i>	E407
Osmolal effects on vasopressin secretion in the streptozotocin-diabetic rat <i>C. M. Van Itallie and J. D. Fernstrom</i>	E411
Muscle mitochondrial bioenergetics, oxygen supply, and work capacity during dietary iron deficiency and repletion <i>K. J. A. Davies, J. J. Maguire, G. A. Brooks, P. R. Dallman, and L. Packer</i>	E418

State of metabolic control determines role of epinephrine-glucagon interaction in glucoregulation in diabetes <i>F. W. Kemmer, H. L. A. Lickley, D. E. Gray, G. Perez, and M. Vranic</i>	E428
Body composition and adiposity in LH-lesioned and pair-fed obese Zucker rats <i>K. M. Milam, R. E. Keesey, and J. S. Stern</i>	E437
Adipose lipoprotein lipase in insulin-treated diabetic lean and obese Zucker rats <i>C. P. Chan and J. S. Stern</i>	E445
Calcium homeostasis in chronic streptozotocin-induced diabetes mellitus in the rat <i>S. Hough, J. E. Russell, S. L. Teitelbaum, and L. V. Avioli</i>	E451
<hr/>	
ANNOUNCEMENTS	E457
<hr/>	
<i>Subject Index to Volume 5</i>	E459
<i>Author Index to Volume 5</i>	E465

CORRIGENDA

Volume 241, December 1981
Volume 4, December 1981

Page E454: W. M. Burch and H. E. Lebovitz. "Hormonal activation of ornithine decarboxylase in embryonic chick pelvic cartilage." *Page E456:* line 12, column 2, sentence should read: Other factors studied that did not increase ODC activity include hydrocortisone, Bt₂cGMP, ovine and bovine growth hormone, and ovine placental lactogen (data not shown).

American Journal of Physiology: Gastrointestinal and Liver Physiology

No. 1. JANUARY 1982

EDITORIAL REVIEW

- Gut immunophysiology: a gastroenterologist's view with emphasis on pathophysiology
W. O. Dobbins III

G1

Gastric emptying and postprandial duodenogastric reflux in pylorectomized dogs <i>S. A. Müller-Lissner, A. Sonnenberg, G. Schattenmann, A. Hollinger, J. R. Siewert, and A. L. Blum</i>	G9
Blood sugar oscillations and duodenal migrating myoelectric complexes <i>J. Fioramonti, L. Bueno, and M. Ruckebusch</i>	G15
Prostaglandin E ₂ -histamine interactions on cAMP, cGMP, and acid production in isolated fundic glands <i>R. A. Levine, K. R. Kohen, E. H. Schwartzel, Jr., and C. E. Ramsay</i>	G21
Relative contribution of fat, protein, carbohydrate, and ethanol to intestinal hyperemia <i>H. Siregar and C. C. Chou</i>	G27
Nature of flow dependence of protein secretion by the exocrine pancreas <i>J. J. L. Ho and S. S. Rothman</i>	G32
Effects of individual taurine-conjugated bile acids on biliary lipid secretion and sucrose clearance in the unanesthetized dog <i>I. T. Gilmore, J. L. Barnhart, A. F. Hofmann, and S. Erlinger</i>	G40
Migrating action-potential complex activity in absence of fluid production is produced by B subunit of cholera enterotoxin <i>D. R. Sinar, L. G. Charles, and T. W. Burns</i>	G47
Permeability characteristics of bile duct in the rat <i>N. D. Smith and J. L. Boyer</i>	G52
Elevated intraluminal pressure alters rabbit small intestinal transport in vivo <i>E. A. Swabb, R. A. Hynes, and M. Donowitz</i>	G58
Intestinal filtration-secretion due to increased intraluminal pressure in rabbits <i>E. A. Swabb, R. A. Hynes, W. G. Marnane, J. S. McNeil, R. A. Decker, Y.-H. Tai, and M. Donowitz</i>	G65

LETTERS TO THE EDITOR

- Stimulus-secretion coupling and protein carboxyl methylation
J. S. Davison; S. Heisler and C. Gagnon

G76

ANNOUNCEMENTS

G78

No. 2. FEBRUARY 1982

EDITORIAL REVIEW

- Histamine, cAMP, and activation of piglet gastric mucosa
T. E. Machen, M. J. Rutten, and E. B. M. Ekblad

G79

Stimulation of gastric acid secretion by glycine and related oligopeptides in humans <i>A. Wald and S. A. Adibi</i>	G85
--	-----

- Coordinate loss of glucocorticoid responsiveness by intestinal enzymes during postnatal development
S. J. Henning and L. L. Leeper

G89

Bile acid and bile salt disrupt gastric mucosal barrier in the dog by different mechanisms <i>W. C. Duane, D. M. Wiegand, and C. E. Sievert</i>	G95
Gastric and duodenal HCO_3^- transport in vitro: effects of hormones and local transmitters <i>G. Flemström, J. R. Heylings, and A. Garner</i>	G100
Biphasic development of pentagastrin sensitivity in rat stomach <i>B. Garzon, R. Ducroc, J.-P. Onolfo, J.-F. Desjeux, and J.-P. Geloso</i>	G111
Mechanism of cholinergic regulation of electrolyte transport in rat colon in vitro <i>T. W. Zimmerman, J. W. Dobbins, and H. J. Binder</i>	G116
cAMP and calcium in generation of slow waves in cat colon <i>S. Anuras</i>	G124
Calcium transport in the ileum of uremic rats <i>M. Koller and U. Binswanger</i>	G128
Gastric mucosal cell proliferation during development in rats and effects of pentagastrin <i>A. P. N. Majumdar and L. R. Johnson</i>	G135
Prostaglandin synthesis inhibition and postprandial intestinal hyperemia <i>R. H. Gallavan, Jr., and C. C. Chou</i>	G140
Characterization of isolated epithelial cells from rat small intestine <i>P. Hartmann, R. Owen, and D. M. Bissell</i>	G147
Splanchnic hemodynamics in portal-hypertensive rats: measurement with γ -labeled microspheres <i>R. J. Groszmann, J. Vorobioff, and E. Riley</i>	G156
Cyclic nucleotide antagonists of cholecystokinin: structural requirements for interaction with the cholecystokinin receptor <i>N. Barlas, R. T. Jensen, M. C. Beinfeld, and J. D. Gardner</i>	G161
Intestinal phospholipase A and triglyceride lipase: localization and effect of fasting <i>K. M. M. Shakir, L. Gabriel, S. G. Sundaram, and S. Margolis</i>	G168
Plasma pancreatic trypsinogens in chronic renal failure and after nephrectomy <i>M. C. Geokas, R. Reidelberger, M. O'Rourke, E. Passaro, Jr., and C. Largman</i>	G177

No. 3. MARCH 1982

EDITORIAL REVIEW

Gastroduodenal HCO_3^- transport: characteristics and proposed role in acidity regulation and mucosal protection <i>G. Flemström and A. Garner</i>	G183
--	------

Permeability of intestinal capillaries: effects of fat absorption and gastrointestinal hormones <i>D. N. Granger, M. A. Perry, P. R. Kviety, and A. E. Taylor</i>	G194
Relation between intestinal blood flow and oxygen uptake <i>P. R. Kviety and D. N. Granger</i>	G202
Demonstration of net potassium absorption in mammalian colon <i>J. P. Hayslett, J. Halevy, P. E. Pace, and H. J. Binder</i>	G209
Effect of fasting and refeeding on pancreatic enzymes and secretagogue responsiveness in rats <i>P. C. Lee, S. Brooks, and E. Lebenthal</i>	G215
Ethyl alcohol interferes with excitation-contraction mechanisms of canine antral muscle <i>K. M. Sanders and A. J. Bauer</i>	G222
Human parotid saliva protein composition: dependence on physiological factors <i>S. G. Oberg, K. T. Izutsu, and E. L. Truelove</i>	G231
α_2 -Adrenergic receptor regulation of ion transport in rabbit ileum <i>E. B. Chang, M. Field, and R. J. Miller</i>	G237

Mucosal gastrin receptor. VII. Up- and downregulation <i>G. R. Speir, K. Takeuchi, W. Peitsch, and L. R. Johnson</i>	G243
Relationship of cholecystokinin receptor binding to regulation of biological functions in pancreatic acini <i>H. Sankaran, I. D. Goldfine, A. Bailey, V. Licko, and J. A. Williams</i>	G250
Oxygen uptake and mechanical tension in esophageal smooth muscle from opossums and cats <i>K. Schulze-Delrieu and S. A. Crane</i>	G258
Mechanism of Cl ⁻ translocation across small intestinal brush-border membrane. I. Absence of Na ⁺ -Cl ⁻ cotransport <i>C. M. Liedtke and U. Hopfer</i>	G263
Mechanism of Cl ⁻ translocation across small intestinal brush-border membrane. II. Demonstration of Cl ⁻ -OH ⁻ exchange and Cl ⁻ conductance <i>C. M. Liedtke and U. Hopfer</i>	G272
Hepatic stimulator substance: physicochemical characteristics and specificity <i>D. R. LaBrecque and N. R. Bachur</i>	G281
In vitro stimulation of cell growth by hepatic stimulator substance <i>D. R. LaBrecque</i>	G289

ANNOUNCEMENTS

G296

No. 4. APRIL 1982

Pancreatic effects of ethionine: blockade of exocytosis and appearance of crinophagy and autophagy precede cellular necrosis <i>H. Koike, M. L. Steer, and J. Meldolesi</i>	G297
Effect of tryptophan on transport properties of newborn rabbit jejunum <i>H. J. Cooke and A. R. Cooke</i>	G308
Hemodynamic effects on oxygen consumption and bile flow in isolated skate liver <i>J. S. Reed, N. D. Smith, and J. L. Boyer</i>	G313
Determinants of biliary secretion in isolated perfused skate liver <i>J. S. Reed, N. D. Smith, and J. L. Boyer</i>	G319
Comparison of vitamin D and 25-hydroxyvitamin D absorption in the rat <i>M. D. Sitrin, K. L. Pollack, M. J. G. Bolt, and I. H. Rosenberg</i>	G326
A pattern for gastric emptying in mice <i>M. Moretó, L. Guzmán, and A. Diez</i>	G333
Endogenous gastric mucosal prostaglandins: their role in mucosal integrity <i>M. Ligumsky, M. I. Grossman, and G. L. Kauffman, Jr.</i>	G337
Cytoprotective effect of centrally administered neurotensin on stress-induced gastric ulcers <i>C. B. Nemerooff, D. E. Hernandez, R. C. Orlando, and A. J. Prange, Jr.</i>	G342
Effect of cholericetics on canalicular transport of protoporphyrin in the rat liver <i>D. L. Avner and M. M. Berenson</i>	G347
Dietary modulation of α -cell volume and function in strain 129/J mice <i>M. G. Morley, E. H. Leiter, A. B. Eisenstein, and I. Strack</i>	G354
<i>Escherichia coli</i> heat-stable toxin: its effect on motility of the small intestine <i>J. R. Mathias, J. Nogueira, J. L. Martin, G. M. Carlson, and R. A. Giannella</i>	G360
Unstirred water layer in canine jejunum <i>K. H. Ryu and E. Grim</i>	G364
Regulation of intestinal goblet cell secretion. I. Role of parasympathetic stimulation <i>R. D. Specian and M. R. Neutra</i>	G370
Regulation of intestinal goblet cell secretion. II. A survey of potential secretagogues <i>M. R. Neutra, L. J. O'Malley, and R. D. Specian</i>	G380
Ionic requirements for H ⁺ secretion and membrane elaboration in frog oxyntic cells <i>C. D. Logsdon and T. E. Machen</i>	G388

Receptors on smooth muscle cells: characterization by contraction and specific antagonists <i>K. N. Bitar and G. M. Makhlof</i>	G400
Maximal lymphatic triglyceride transport rate from the rat small intestine <i>P. Tso, K. L. Buch, J. A. Balint, and J. B. Rodgers</i>	G408
Structural requirements for action of cholecystokinin on enzyme secretion from pancreatic acini <i>M. L. Villanueva, S. M. Collins, R. T. Jensen, and J. D. Gardner</i>	G416
Postreceptor modulation of action of VIP and secretin on pancreatic enzyme secretion by secretagogues that mobilize cellular calcium <i>M. J. Collen, V. E. Sutliff, G.-Z. Pan, and J. D. Gardner</i>	G423
Prevention of phenylbutazone ulcer in the rat by glucose: role of a glycoprivic receptor system <i>W. A. Mersereau and E. J. Hinckley</i>	G429
ANNOUNCEMENTS	G433
No. 5. MAY 1982	
EDITORIAL REVIEW	
Role of capillary recruitment in the regulation of intestinal oxygenation <i>A. P. Shepherd</i>	G435
Effect of ethanol on peptidases of hamster jejunal brush-border membrane <i>P. K. Dinda and I. T. Beck</i>	G442
Effects of ischemia and oxygen radicals on mucosal albumin clearance in intestine <i>B. Grøgaard, D. A. Parks, D. N. Granger, J. M. McCord, and J. O. Forsberg</i>	G448
Characteristics of intestinal glucose secretion in normal and diabetic rats <i>G. M. Levine, Y.-F. Shiao, and J. A. Deren</i>	G455
Gastrin and growth of the alimentary tract in the streptozotocin-diabetic rat <i>H. P. Schedl, H. D. Wilson, K. Ramaswamy, and L. Lichtenberger</i>	G460
Cholecystokinin-induced restricted stimulation of pancreatic enzyme secretion <i>N. Barlas, R. T. Jensen, and J. D. Gardner</i>	G464
Actions of Gila monster venom on dispersed acini from guinea pig pancreas <i>J.-P. Raufman, R. T. Jensen, V. E. Sutliff, J. J. Pisano, and J. D. Gardner</i>	G470
[¹⁴ C]erythritol clearance and canalicular bile acid-independent flow in the baboon <i>S. M. Strasberg, R. G. Ilson, and C. N. Petrunka</i>	G475
β_1 - and β_2 -adrenoceptor agonists have different effects on rat parotid acinar cells <i>R. Henriksson</i>	G481
Effect of acute respiratory alkalosis and acidosis on intestinal ion transport in vivo <i>G. M. Feldman and A. N. Charney</i>	G486
Metabolism of arachidonic acid by pancreatic acini: relation to amylase secretion <i>W. F. Stenson and E. Lobos</i>	G493
Responsiveness of longitudinal and circular muscle layers of the portal vein <i>B. P. Brown, S. Anuras, and D. D. Heistad</i>	G498
Gastrin stimulation of isolated gastric glands <i>C. S. Chew and S. J. Hersey</i>	G504
Stimulation of pancreatic acinar secretion: increases in cytosolic calcium and sodium <i>J. O'Doherty and R. J. Stark</i>	G513
Biliary excretion of [³ H]-25-hydroxyvitamin D ₃ in the vitamin D-depleted rat <i>M. Gascon-Barré</i>	G522
Regulation of Na ⁺ -Pi cotransport by 1,25-dihydroxyvitamin D ₃ in rabbit duodenal brush-border membrane <i>B. Hildmann, C. Storelli, G. Danisi, and H. Murer</i>	G533

EDITORIAL REVIEW

A model of the mesenteric circulation

E. D. Jacobson, R. H. Gallavan, Jr., and J. D. Fondacaro

G541

Effects of inhibitors of cyclic nucleotide phosphodiesterase on the actions
of vasoactive intestinal peptide and secretin on pancreatic acini*J. D. Gardner, L. Y. Korman, M. D. Walker, and V. E. Sutliff*

G547

Stimulation of ammonia production from glutamine by intraluminal
glucose in small intestine of dogs*F. L. Weber, Jr., G. Veach, and D. W. Friedman*

G552

Horseradish peroxidase transport across adult rabbit jejunum in vitro

M. Heyman, R. Ducroc, J.-F. Desjeux, and J. L. Morgat

G558

Regulation of oxygen uptake in resting and pentagastrin-stimulated canine stomach

M. A. Perry, G. B. Bulkley, P. R. Kvietys, and D. N. Granger

G565

Role of exchange vessels in the regulation of intestinal oxygenation

D. N. Granger, P. R. Kvietys, and M. A. Perry

G570

Effects of chlorothiazide on 1,25-dihydroxyvitamin D₃, parathyroid hormone,
and intestinal calcium absorption in the rat*M. J. Favus, F. L. Coe, S. C. Kathpalia, A. Porat,
P. K. Sen, and L. M. Sherwood*

G575

Gastric vascular actions of prostanooids and the dual effect of arachidonic acid

G. L. Kauffman, Jr., and B. J. R. Whittle

G582

Mechanism of cycling of migrating myoelectric complexes: effect of morphine

S. Sarna, P. Northcott, and L. Belbeck

G588

Pancreatic circulation: intrinsic regulation

P. R. Kvietys, J. M. McLendon, G. B. Bulkley, M. A. Perry, and D. N. Granger

G596

Duodenogastric reflux in the dog

*A. Sonnenberg, S. A. Müller-Lissner, G. Schattenmann,
J. R. Siewert, and A. L. Blum*

G603

Effects of atropine on the action and release of secretin in humans

C. H. You, J. M. Rominger, and W. Y. Chey

G608

Decreased pancreatic exocrine response to cholecystokinin in Zucker obese rats

C. L. McLaughlin, S. R. Peikin, and C. A. Baile

G612

Evidence for electrogenic Na-Cl symport in the in vitro frog stomach

G. Carrasquer, T.-C. Chu, W. S. Rehm, and M. Schwartz

G620

Chloride transport by intact rat liver and cultured rat hepatocytes

B. F. Scharschmidt, R. W. Van Dyke, and J. E. Stephens

G628

Digests of protein augment acid-induced canine pancreatic secretion

A. S. Fink, J. C. Miller, D. W. Juhn, and J. H. Meyer

G634

Glucose absorption by in vitro perfused ileum of the fetal rat

G. D. Potter, K. L. Schmidt, R. Lester, and S. G. Schultz

G642

Sucrase metabolism in germfree rats

W. A. Olsen and H. A. Korsmo

G650

Minute rhythm of electrical spike bursts of the small
intestine in different species*P. Fleckenstein, L. Bueno, J. Fioramonti, and Y. Ruckebusch*

G654

Incremental and decremental kinetics of gastric responses

to infused gastrin in dogs

B. I. Hirschowitz

G660

Continuous measurement of intestinal mucosal blood
flow by laser-Doppler velocimetry*A. P. Shepherd and G. L. Riedel*

G668

American Journal of Physiology: Heart and Circulatory Physiology

No. 1. JANUARY 1982

INVITED REVIEW

Sense and nonsense about the Fenn effect

J. A. Rall

H1

Effects of glucagon on cardiac chronotropic response to vagal stimulation in the dog S. L. Stuesse, M. N. Levy, and H. Zieske	H7
Comparative response of the developing canine myocardium to inotropic agents I.-S. Park, L. H. Michael, and D. J. Driscoll	H13
Interaction of verapamil with human platelet α -adrenergic receptors E. S. Barnathan, V. P. Addonizio, and S. J. Shattil	H19
Relationships between adenosine and coronary resistance in conscious exercising dogs J. E. McKenzie, R. P. Steffen, and F. J. Haddy	H24
Adaptive changes of pyruvate oxidation in perfused heart during adrenergic stimulation R. Bünger, B. Permanetter, O. Sommer, and S. Yaffe	H30
Acute interaction of vasopressin and neurogenic mechanisms in DOC-salt hypertension H. Matsuguchi and P. G. Schmid	H37
Pressor response to vasopressin and impaired baroreflex function in DOC-salt hypertension H. Matsuguchi and P. G. Schmid	H44
Fetal intestinal oxygen consumption at various levels of oxygenation D. I. Edelstone and I. R. Holzman	H50
Blood flow and ultrastructure in ischemic myocardium of cats given dexamethasone J. A. Spath, Jr., and R. J. Barsotti	H55
Kinetics of positron emitters in vivo characterized with a beta probe R. A. Lerch, H. D. Ambos, S. R. Bergmann, B. E. Sobel, and M. M. Ter-Pogossian	H62
Direct measurement of sarcomere length from isolated cardiac cells K. P. Roos, A. J. Brady, and S. T. Tan	H68
Effects of inorganic phosphate on ion exchange, energy state, and contraction in mammalian heart J. E. Ponce-Hornos and G. A. Langer	H79
Effect of increased magnesium on recovery from ischemia in rat and rabbit hearts M. M. Bersohn, K. I. Shine, and W. D. Sterman	H89
Importance of injection site for coronary blood flow determinations by microspheres in rats P. Wicker and R. C. Tarazi	H94
Functional characterization of atrial pacemaker activity W. C. Randall, L. E. Rinkema, S. B. Jones, J. F. Moran, and G. Brynjolfsson	H98
Acute inhibition of renin release during left circumflex coronary occlusion in dogs A. Livnat and J. E. Zehr	H107
Left ventricular performance in conscious thyrotoxic calves S. Goldman, M. Olajos, H. Friedman, W. R. Roeske, and E. Morkin	H113

SPECIAL COMMUNICATIONS

Construction and characterization of branched elastic transparent vessel models J. Melbin, R. Gopalakrishnan, R. Riffle, and A. Noordergraaf	H122
Noninvasive measurement of systolic and diastolic blood pressure in swine B. C. Hodgkin, D. E. Burkett, and E. B. Smith	H127

LETTERS TO THE EDITOR

When is the left ventricular pressure fall exponential?

*G. Martin, J. Cosin, J. V. Gimeno, and A. Ramirez;
B. H. Lorell, J. B. Newell, I. Palacios, and W. M. Daggett*

H131

No. 2. FEBRUARY 1982

Capillary density in rat myocardium during timed plasma staining <i>F. Vetterlein, H. dal Ri, and G. Schmidt</i>	H133
Kinins in regulation of uteroplacental blood flow in the pregnant rabbit <i>M. Seino, O. A. Carretero, R. Albertini, and A. G. Scicli</i>	H142
Responses to activation of cardiac sympathetic afferents with epicardial bradykinin <i>R. B. Felder and M. D. Thamas</i>	H148
Does normal pulmonary impedance constitute the optimum load for the right ventricle? <i>H. Piene and T. Sund</i>	H154
Effect of tilting on adipose tissue vascular resistance and sympathetic activity in humans <i>B. Linde and P. Hjemdahl</i>	H161
Sinus afferents supplying superior cervical ganglion <i>R. S. Tuttle and M. McCleary</i>	H168
Left ventricular performance in endotoxin shock in dogs <i>W. G. Guntheroth, J. P. Jacky, I. Kawabori, J. G. Stevenson, and A. H. Moreno</i>	H172
β -Adrenergic relaxation and cAMP kinase activation in coronary arterial smooth muscle <i>P. J. Silver, C. Schmidt-Silver, and J. DiSalvo</i>	H177
Sympathetic transients caused by abrupt alterations of carotid baroreceptor activity in humans <i>B. G. Wallin and D. L. Eckberg</i>	H185
Ventricular function in norepinephrine-induced cardiomyopathic rabbits <i>J. C. Lee and S. E. Downing</i>	H191
Effects of blood volume changes on characteristic impedance of the pulmonary artery <i>J.-P. L. Dujardin, D. N. Stone, C. D. Forcino, L. T. Paul, and H. P. Pieper</i>	H197
Dissociation of Ca^{2+} accumulation from protein release in calcium paradox: effect of barium <i>W. G. Nayler and P. M. Grinwald</i>	H203
Capillary network geometry and red cell distribution in hamster cremaster muscle <i>B. Klitzman and P. C. Johnson</i>	H211
Influence of carotid sinus pressure on atrial receptors and renal blood flow <i>F. Karim, D. Mackay, and C. T. Kappagoda</i>	H220
Mass-balance approach for estimating transcapillary fluid and protein movement <i>J. J. Friedman, J. J. Szwed, and B. L. Johns</i>	H227
Regulation of norepinephrine levels in synaptic clefts of dog vascular tissue <i>D. K. Rorie and G. M. Tyce</i>	H233
Effect of acute regional ischemia on pressure in the subepicardium and subendocardium <i>H. N. Sabbah and P. D. Stein</i>	H240
Comparison of mechanical and chemical properties of extra- and intralobar canine pulmonary arteries <i>R. H. Cox</i>	H245
Mitochondrial cholesterol content and membrane properties in porcine myocardial ischemia <i>W. Rouslin, J. MacGee, S. Gupte, A. Wesselman, and D. E. Epps</i>	H254
Isoproterenol-induced myocardial dysfunction in dogs with coronary stenosis <i>K. P. Gallagher, T. Kumada, A. Battler, W. S. Kemper, and J. Ross, Jr.</i>	H260

SPECIAL COMMUNICATIONS

Multiplexer displays two pressure signals on single oscilloscope channel <i>R. L. Battagin and S. A. Glantz</i>	H288
A dual-channel signal averager for spontaneous signals <i>A. Fabiato and A. O. Wist</i>	H291
A model for studying chronic reduction in uterine blood flow in pregnant sheep <i>K. E. Clark, M. Durnwald, and J. E. Austin</i>	H297

No. 3. MARCH 1982

Loading determinants of relaxation in cat papillary muscle <i>M. A. Goethals, P. R. Housmans, and D. L. Brutsaert</i>	H303
Decrease in myocardial oxygen extraction with aortic constriction in the dog <i>D. Saito, S. Kusachi, O. Nishiyama, K. Yasuhara, S. Haraoka, H. Nagashima, and R. A. Olsson</i>	H310
Vasopressor and depressor actions of angiotensin in the anesthetized fowl <i>H. Nishimura, Y. Nakamura, R. P. Sumner, and M. C. Khosla</i>	H314
Effects of diltiazem on smooth muscle and neuromuscular junction in the mesenteric artery <i>H. Suzuki, T. Itoh, and H. Kuriyama</i>	H325
Pulmonary and coronary endothelial effects of acute myocardial ischemia in dogs <i>M. H. Gee, J. T. Flynn, and J. A. Spath, Jr.</i>	H337
Inhibition of theophylline of the early component of canine ventricular contraction <i>M. Endoh, T. Iijima, and S. Motomura</i>	H349
Alterations in mechanical properties of rat papillary muscle during maturation <i>J. M. Capasso, R. M. Remily, and E. H. Sonnenblick</i>	H359
Quantitation of regional chondroosseous circulation in canine tibia and femur <i>J. E. Schnitzer, P. McKinstry, T. R. Light, and J. A. Ogden</i>	H365
Interstitial fluid dynamics in conscious renal hypertensive rats <i>N. C. Trippodo</i>	H376
Red blood cell and plasma distribution in SHR cremaster muscle microvessels <i>C. H. Baker, F. R. Wilmoth, E. T. Sutton, and K. Takach</i>	H381
Acute and chronic microsphere loss from canine left ventricular myocardium <i>P. M. Consigny, E. D. Verrier, B. D. Payne, G. Edelist, J. Jester, R. W. Baer, G. J. Vlahakes, and J. I. E. Hoffman</i>	H392
Myocardial responses to α -adrenoceptor stimulation with methoxamine hydrochloride in lambs <i>J. C. Lee, R. R. Fripp, and S. E. Downing</i>	H405
Sarcomere length control in striated muscle <i>R. van Heuningen, W. H. Rijnsburger, and H. E. D. J. ter Keurs</i>	H411
Relation of canine atrial activation sequence to anatomic landmarks <i>H. Hayashi, R. L. Lux, R. F. Wyatt, M. J. Burgess, and J. A. Abildskov</i>	H421
Placental transfer as a function of uterine blood flow <i>R. B. Wilkening, S. Anderson, L. Martensson, and G. Meschia</i>	H429
Mechanism of tissue Ca^{2+} gain during reoxygenation after hypoxia in rabbit myocardium <i>T. Nakanishi, K. Nishioka, and J. M. Jarmakani</i>	H437
Effects of antihistamines and indomethacin on hyperosmolar-induced vasodilation <i>M. R. Pinsky, P. L. Smith, E. R. Bleeker, and B. Bromberger-Barnea</i>	H450
Effects of fatty acid intermediates on $\text{Na}^+ \text{-K}^+$ -ATPase activity of cardiac sarcolemma <i>K. Owens, F. F. Kennett, and W. B. Weglicki</i>	H456
Effect of lung thromboxane generation on regional blood flow during sheep bypass <i>A. H. Schuette, P. C. Hüttemeier, W. D. Watkins, and W. M. Zapol</i>	H462

Modulation of rabbit carotid baroreflex during positive end-expiratory pressure <i>F. J. Sepe, M. R. Magnusson, and H. O. Stinnett</i>	H470
Changes in arterial wall properties during development and maintenance of renal hypertension <i>R. H. Cox</i>	H477
No. 4. APRIL 1982	
Isolated working rat heart perfusion with perfluorochemical emulsion Fluosol-43 <i>L. D. Segel and S. V. Rendig</i>	H485
Insulin reversal of diabetes-induced inhibition of vascular contractility in the rat <i>M. A. Pfaffman, C. R. Ball, A. Darby, and R. Hilman</i>	H490
Vasopressin in brain of spontaneously hypertensive rats <i>W. Rascher, R. E. Lang, T. Unger, D. Ganter, and F. Gross</i>	H496
Postnatal regulation of canine oxygen delivery: control of erythrocyte 2,3-DPG levels <i>P. A. Mueggler and J. A. Black</i>	H500
New method for measuring QRS duration using high-frequency electrocardiography <i>V. Bhargava and A. L. Goldberger</i>	H507
Colloid osmotic pressure changes in isolated isogravimetric cat hindlimb <i>P. D. Watson</i>	H512
Responses of aortic baroreceptors to changes of aortic blood flow and pressure in rat <i>J. D. Charlton and A. J. Baertschi</i>	H520
On-line cardiac mapping: an analog approach using video and multiplexing techniques <i>I. Parson, P. Mendler, and E. Downar</i>	H526
Dependence of $^{13}\text{NH}_3$ myocardial extraction and clearance on flow and metabolism <i>J. Krivokapich, S.-C. Huang, M. E. Phelps, N. S. MacDonald, and K. I. Shine</i>	H536
Effects of hemorrhage on umbilical venous return and oxygen delivery in fetal lambs <i>J. Itskovitz, B. W. Goetzman, and A. M. Rudolph</i>	H543
Dimensional analysis of right and left ventricles during positive-pressure ventilation in dogs <i>S. S. Cassidy, J. H. Mitchell, and R. L. Johnson, Jr.</i>	H549
Fibronectin deficiency and intestinal transvascular fluid balance during bacteremia <i>B. C. Dillon and T. M. Saba</i>	H557
Differential effects of histamine on protein permeability in dog lung and forelimb <i>M. B. Maron</i>	H565
Pneumotoxicity and thrombocytopenia after single injection of monocrotaline <i>K. S. Hilliker, T. G. Bell, and R. A. Roth</i>	H573
Lack of time-dependent augmentation of carotid sinus baroreflex system after vagotomy <i>H. Hosomi and K. Yokoyama</i>	H580
Characterization of carnitine transport in isolated perfused adult rat hearts <i>T. C. Vary and J. R. Neely</i>	H585
Evidence for a neurotransmitter role for epinephrine derived from the adrenal medulla <i>K. H. Berecek and M. J. Brody</i>	H593
Immunoreactive glandular kallikrein in rat plasma: a radioimmunoassay for its determination <i>S. F. Rabito, A. G. Scicli, V. Kher, and O. A. Carretero</i>	H602
Left ventricular dimensions and function during right ventricular pressure overload <i>F. R. Badke</i>	H611

Extracellular K ⁺ accumulation during myocardial ischemia in isolated rabbit heart <i>J. Weiss and K. I. Shine</i>	H619
Unsaturated fatty acids and cyclooxygenase inhibitors: effects on pial arterioles <i>W. I. Rosenblum</i>	H629
Diastolic myocardial stiffness in gradually developing left ventricular hypertrophy in dog <i>T. Serizawa, I. Mirsky, B. A. Carabello, and W. Grossman</i>	H633
Human sinus node responses to repetitive, ramped carotid baroreceptor stimuli <i>D. L. Eckberg and M. J. Eckberg</i>	H638
Effect of ADP-induced platelet aggregation on lung fluid balance in sheep <i>F. L. Minnear, D. G. Moon, J. E. Kaplan, and A. B. Malik</i>	H645
Hydrolysis of sarcolemma by lysosomal lipases and inhibition by chlorpromazine <i>J. K. Beckman, K. Owens, T. E. Knauer, and W. B. Weglicki</i>	H652
Fetal myocardial oxygen and carbohydrate consumption during acutely induced hypoxemia <i>D. J. Fisher, M. A. Heymann, and A. M. Rudolph</i>	H657
Determination of safety factor for defibrillator waveforms in cultured heart cells <i>J. L. Jones and R. E. Jones</i>	H662
Synthesis and use of radio colbaltic EDTA as an extracellular marker in rabbit heart <i>J. H. B. Bridge, M. M. Bersohn, F. Gonzalez, and J. B. Bassingthwaighe</i>	H671
α - and β -Adrenergic effects of epinephrine on ventricular pacemakers in dogs <i>A. J. Hordof, E. Rose, P. Danilo, Jr., and M. R. Rosen</i>	H677
Atropine does not attenuate cerebral vasodilatation during hypercapnia <i>D. W. Busija and D. D. Heistad</i>	H683
Adenosine and free-flow functional hyperemia in striated muscle <i>K. G. Proctor and B. R. Duling</i>	H688
An extracorporeal reservoir device for continuous monitoring of tissue volume change <i>H. I. Chen</i>	H698
Exchange of potassium and strontium in adult bone <i>B. Maltby, G. J. Lemon, J. B. Bassingthwaighe, and P. J. Kelly</i>	H705

SPECIAL COMMUNICATIONS

Rat gracilis muscle preparation for combined macro- and microvascular research <i>D. P. Swain and B. J. Lalone</i>	H713
---	------

RAPID COMMUNICATIONS

Hemodynamic studies in spontaneously hypertensive rats with congenital arteriovenous shunts <i>S. Sesoko, B. L. Pegram, I. Kuwajima, and E. D. Frohlich</i>	H722
---	------

ANNOUNCEMENTS

H727

No. 5, MAY 1982

INVITED REVIEW

Phosphorus nuclear magnetic resonance spectroscopy of cardiac and skeletal muscles <i>J. S. Ingwall</i>	H729
--	------

Adverse effects of prostacyclin used to perfuse isolated lung lobes <i>M. M. Krausz, T. Utsunomiya, L. L. Levine, B. Dunham, D. Shepro, and H. B. Hechtman</i>	H745
---	------

Ion-selective electrode studies of cell Na components in vascular smooth muscle of WKY and SHR <i>S. M. Friedman, R. A. McIndoe, and G. Spieckermann</i>	H751
Calcium-dependent contractile activation of cerebral artery produced by quick stretch <i>K. Nakayama</i>	H760
Effect of pulsatile pressure and metabolic rate on intestinal autoregulation <i>A. P. Shepherd and G. L. Riedel</i>	H769
Favorable effects of therapy on cardiac performance in spontaneously hypertensive rats <i>J. M. Pfeffer, M. A. Pfeffer, P. Fletcher, M. C. Fishbein, and E. Braunwald</i>	H776
Na^+ -induced intestinal interstitial hyperosmolality and vascular responses during absorptive hyperemia <i>H. G. Bohlen</i>	H785
Cardiovascular responses to unilateral and bilateral stimulation of rabbit aortic nerves <i>H. O. Stinnett, F. J. Sepe, and M. R. Magnusson</i>	H790
Effect of adenosine on calcium uptake by intact and cultured vascular smooth muscle <i>R. A. Fenton, S. P. Bruttig, R. Rubio, and R. M. Berne</i>	H797
α -Adrenergic control of oxygen delivery to myocardium during exercise in conscious dogs <i>G. R. Heyndrickx, P. Muylaert, and J. L. Pannier</i>	H805
Reflex cardiovascular changes with veratridine in the conscious dog <i>K. W. Barron and V. S. Bishop</i>	H810
Prolonged myocardial nucleotide depletion after brief ischemia in the open-chest dog <i>J. L. Swain, R. L. Sabina, P. A. McHale, J. C. Greenfield, Jr., and E. W. Holmes</i>	H818
Evidence for persistent activation of cardiac slow channels in low-calcium solutions <i>J. Linden and G. Brooker</i>	H827
Excitation-contraction coupling in neonatal and adult myocardium of cat <i>J. G. Maylie</i>	H834
Flow dependence of norepinephrine extraction by isolated perfused rat lungs <i>R. A. Roth</i>	H844
Regional myocardial radiotracer kinetics in dogs using miniature radiation detectors <i>M. L. Jacobs, R. D. Okada, W. M. Daggett, B. N. Fowler, H. W. Strauss, G. Geffin, and G. M. Pohost</i>	H849
Load dependence of mammalian heart relaxation during cardiac hypertrophy and heart failure <i>Y. Lecarpentier, J. L. Martin, P. Gastineau, and P. Y. Hatt</i>	H855
Response of cerebral blood flow to changes in PCO_2 in fetal, newborn, and adult sheep <i>A. A. Rosenberg, M. D. Jones, Jr., R. J. Traystman, M. A. Simmons, and R. A. Molteni</i>	H862
Transmural variation in the relationship between myocardial infarct size and risk area <i>S. Koyanagi, C. L. Eastham, D. G. Harrison, and M. L. Marcus</i>	H867
Estimation of local myocardial stress <i>R. F. Janz</i>	H875
Contractile behavior of rat myocardium after reversal of hypertensive hypertrophy <i>J. M. Capasso, J. E. Strober, A. Malhotra, J. Scheuer, and E. H. Sonnenblick</i>	H882
The bloodless rat: a new model for macromolecular transport studies across lung endothelium <i>E. E. Schneeberger and B. A. Neary</i>	H890
Membrane properties of smooth muscle cells in pulmonary arteries of the rat <i>H. Suzuki and B. M. Twarog</i>	H900
Membrane properties of smooth muscle cells in pulmonary hypertensive rats <i>H. Suzuki and B. M. Twarog</i>	H907

SPECIAL COMMUNICATIONS

Denervation of arterial chemoreceptors and baroreceptors in fetal lambs in utero

J. Itskovitz and A. M. Rudolph

H916

A planimetric technique for measuring deformation of the carotid sinus region

E. Koushanpour

H921

No. 6. JUNE 1982**INVITED REVIEW**

Myocardial aging: functional alterations and related cellular mechanisms

E. G. Lakatta and F. C. P. Yin

H927

Mechanism of higher oxygen consumption rate: pressure-loaded
vs. volume-loaded heart*H. Suga, R. Hisano, S. Hirata, T. Hayashi, and I. Ninomiya*

H942

Lack of influence of potassium or osmolality on steady-state exercise hyperemia
D. E. Mohrman

H949

Reflex cardiovascular depression induced by capsaicin injection into canine liver
J. H. Ashton, G. A. Iwamoto, J. C. Longhurst, and J. H. Mitchell

H955

Segmental renal vascular resistance in the spontaneously hypertensive rat
C. H. Hsu, J. H. Slavicek, and T. W. Kurtz

H961

Effect of tetrodotoxin on membrane potentials and active tone
in vascular smooth muscle*J. H. Lombard, M. J. Burke, S. J. Contney, W. J. Willem, and W. J. Stekiel*

H967

Nonsympathetic increased inotropic state early after aortic insufficiency
B. Crozatier, D. Caillet, J. L. Chevrier, and P. Y. Hatt

H973

Regional myocardial function and metabolism during acute coronary artery occlusion
H. Kanaide, R. Yoshimura, N. Makino, and M. Nakamura

H980

Regional blood flows measured in Mongolian gerbil by a modified microsphere method
*M. Matsumoto, K. Kimura, A. Fujisawa, T. Matsuyama,
T. Asai, O. Uyama, S. Yoneda, and H. Abe*

H990

Arteriolar vasoconstriction in rat cremaster muscle induced by local heat stress
R. D. Hogan, T. D. Franklin, K. S. Avery, and K. M. Burke

H996

Active hepatic capacitance responses to neural and humoral stimuli in dogs
T. D. Bennett, C. L. MacAnespie, and C. F. Rothe

H1000

Kallikrein-kinin system in regulation of submandibular gland blood flow
T. B. Ørstavik, O. A. Carretero, and A. G. Scigli

H1010

Role of catecholamines in myocardial cell hypertrophy in hypertensive rats
R. J. Tomaneck, R. K. Bhatnagar, P. Schmid, and M. J. Brody

H1015

Contracture of isolated rat heart cells on anaerobic to aerobic transition
C. Hohl, A. Ansel, R. Altschuld, and G. P. Brierley

H1022

DNA synthesis in coronary collaterals after coronary artery occlusion
in conscious dog*S. Pasyk, W. Schaper, J. Schaper, K. Pasyk, G. Miskiewicz,
and B. Steinseifer*

H1031

Effects of increased venous pressure on albumin- and IgG-excluded volumes in skin
D. R. Bell and R. J. Mullins

H1038

Effects of increased venous pressure on albumin- and IgG-excluded volumes in muscle
D. R. Bell and R. J. Mullins

H1044

Response of large hindlimb veins of dog to aortic arch chemoreceptor stimulation
S. L. Britton and D. E. Donald

H1050

Effects of left atrial stretch in cardiac-denervated and intact conscious dogs
D. C. Fater, H. D. Schultz, W. D. Sundet, J. S. Mapes, and K. L. Goetz

H1056

Reflexes elicited by acute stretch of atrial vs. pulmonary receptors
in conscious dogs*H. D. Schultz, D. C. Fater, W. D. Sundet, P. G. Geer, and K. L. Goetz*

H1065

Effect of ischemia on mechanical function and high-energy phosphates in rabbit myocardium	
<i>K. Nishioka and J. M. Jarmakani</i>	H1077
Endogenous triacylglycerol metabolism in diabetic heart	
<i>D. J. Paulson and M. F. Crass III</i>	H1084
Fluid dynamics of the mitral valve: physiological aspects of a mathematical model	
<i>D. M. McQueen, C. S. Peskin, and E. L. Yellin</i>	H1095

SPECIAL COMMUNICATIONS

Measurement of coronary sinus blood flow by fiber-optic laser Doppler anemometry	
<i>D. Kilpatrick, T. Linderer, R. E. Sievers, and J. V. Tyberg</i>	H1111
Detection of takeoff potential from intracellular recordings	
<i>R. McGillivray and R. W. Wald</i>	H1115
Beat-by-beat control of cardiac output in awake dogs with atrioventricular block	
<i>C. R. Wyss, T. D. Bennett, and A. M. Scher</i>	H1118
<hr/>	
<i>Subject Index to Volume 11</i>	H1123
<i>Author Index to Volume 11</i>	H1133

American Journal of Physiology: Regulatory, Integrative and Comparative Physiology

No. 1. JANUARY 1982

EDITORIAL

Our daily rounds of activity and temperature

F. E. Yates

R1

INVITED OPINION

Mathematical model of the human circadian system with two interacting oscillators

R. E. Kronauer, C. A. Czeisler, S. F. Pilato,
M. C. Moore-Ede, and E. D. Weitzman

R3

Commentary on the mathematical model of the human circadian system by Kronauer et al.

R. A. Wever

R17

Reply to R. Wever

R. E. Kronauer

R22

PAH transport in rock crab urinary bladder. II. Luminal and serosal steps

C. W. Holliday and D. S. Miller

R25

Sympathetic immunoregulation: difference between high- and low-responder animals

A. del Rey, H. O. Besedovsky, E. Sorkin, M. Da Prada,
and G. P. Bondiolotti

R30

Hypothalamic neurons with activity patterns related to sympathetic nerve discharge

S. M. Barman and G. L. Gebber

R34

Dark pulses affect the circadian rhythm of activity in hamsters kept in constant light

G. B. Ellis, R. E. McKleen, and F. W. Turek

R44

Role of sodium concentration of the cerebrospinal fluid in the salt appetite of sheep

R. S. Weisinger, P. Considine, D. A. Denton, L. Leksell,
M. J. McKinley, D. R. Mouw, A. F. Muller, and E. Tarjan

R51

Renal handling of taurine in marine fish

H. Schröck, R. P. Forster, and L. Goldstein

R64

Effect of tilting on blood pressure and interstitial fluid pressures of bluefish and smooth dogfish

C. S. Ogilvy and A. B. DuBois

R70

Thermosensitive single-unit activity of in vitro hypothalamic slices

S. R. Kelso, M. N. Perlmutter, and J. A. Boulant

R77

Free amino acids in the blood of fetal and maternal Weddell seals

B. J. Murphy, P. W. Hochachka, W. M. Zapol, and G. C. Liggins

R85

Rat muscle structure and metabolism in relation to age and food intake

R. J. M. McCarter, E. J. Masoro, and B. P. Yu

R89

Roles of the skin and gills in sodium and water exchanges in neotenic urodele amphibians

G. F. Baldwin and P. J. Bentley

R94

Myocardial blood flow and metabolism in the diving seal

J. K. Kjekshus, A. S. Blix, R. Elsner, R. Hol, and E. Amundsen

R97

Control of diving responses by carotid bodies and baroreceptors in ducks

R. S. Lillo and D. R. Jones

R105

Shivering thermogenesis and glucose uptake by muscles of normal or diabetic rats

O. L. K. Smith and S. B. Davidson

R109

Absence of endotoxin fever but not prostaglandin E ₂ fever in the Brattleboro rat <i>P. C. Eagan, N. W. Kasting, W. L. Veale, and K. E. Cooper</i>	R116
Embryonic oxygen consumption and growth of Laysan and black-footed albatross <i>T. N. Pettit, G. S. Grant, G. C. Whittow, H. Rahn, and C. V. Paganelli</i>	R121
Amygdaloid lesions impair ingestive responses to 2-deoxy-D-glucose but not insulin <i>M. G. Tordoff, P. J. Geiselman, C. V. Grijalva, S. W. Kiefer, and D. Novin</i>	R129
Mechanism of captopril-induced drinking <i>E. L. Schriffen and J. Genest</i>	R136
Model for parathyroid hormone secretion and metabolism in calves <i>A. Jung, G. P. Mayer, J. G. Hurst, R. Neer, and J. T. Potts, Jr.</i>	R141
Parathyroid gland response to epinephrine: a rate-sensitivity mechanism <i>A. Jung, G. P. Mayer, J. G. Hurst, R. Neer, and J. T. Potts, Jr.</i>	R151
Metabolic and acid-base changes during selection of warmer water by cold-acclimated fish <i>L. I. Crawshaw, R. A. Ackerman, F. N. White, and M. E. Heath</i>	R157

ANNOUNCEMENTS	R162
----------------------	------

No. 2. MARCH 1982

INVITED OPINIONS

The tides of human consciousness: descriptions and questions <i>A. T. Winfree</i>	R163
Models' limits suggest reflexivity in nature <i>H. Fethke</i>	R167
The good enough calculi of evolving control systems: evolution is not engineering <i>L. D. Partridge</i>	R173

MODELING METHODOLOGY FORUM

On comparing regression lines with unequal slopes <i>G. O. Zerbe, P. G. Archer, N. Banchero, and A. J. Lechner</i>	R178
---	------

Rhythmic contractions of the teat sphincter in bovines: an expulsion mechanism <i>A. M. Lefcourt</i>	R181
Dogfish pressor response to potassium blocked by magnesium and phentolamine <i>R. G. Carroll, D. F. Opdyke, and N. E. Keller</i>	R185
Muscle enzyme profile, diet, and flight in South American bats <i>M. E. Yacoe, J. W. Cummings, P. Myers, and G. K. Creighton</i>	R189
Ventral medullary extracellular fluid pH and blood flow during hypoxia <i>W. F. Nolan, P. C. Houck, J. L. Thomas, and D. G. Davies</i>	R195
Sperm motility-inhibiting factor in rat epididymis <i>T. T. Turner and R. D. Giles</i>	R199
Effect of swim training on development of obesity in the genetically obese rat <i>J. L. Walberg, P. A. Molé, and J. S. Stern</i>	R204
Dietary-induced severe obesity: a rat model <i>L. B. Oscai</i>	R212
Circulatory mechanoreceptors in the pond turtle <i>Pseudemys scripta</i> <i>F. M. Faraci, H. W. Shirer, J. A. Orr, and J. W. Trank</i>	R216
Glucose and endocrine responses to hypothalamic electrical stimulation in rats <i>P. U. Dubuc, L. S. Leshin, and P. L. Willis</i>	R220
Estimation of whole-body capillary transport parameters from osmotic transient data <i>M. B. Wolf</i>	R227

Peripheral neural input to neurons of the stellate ganglion in dog <i>Z. J. Bosnjak, J. L. Seagard, and J. P. Kampine</i>	R237
Phylogenesis of the Bainbridge reflex <i>D. H. Boettcher, M. Zimpfer, and S. F. Vatner</i>	R244
Splenic afferents and some of their reflex responses <i>N. L. Herman, D. R. Kostreva, and J. P. Kampine</i>	R247
Influence of nutritional state on periodicity in plasma insulin levels in monkeys <i>B. C. Hansen, K.-L. C. Jen, D. J. Koerker, C. J. Goodner, and R. A. Wolfe</i>	R255
Failure of pinealectomy or melatonin to alter circadian activity rhythm of the rat <i>P. W. Cheung and C. E. McCormack</i>	R261
Lateral hypothalamic damage and body weight regulation: role of gender, diet, and lesion placement <i>A. N. Van Den Pol</i>	R265
Open-loop gain of evaporative heat loss during radiant heat exposure in the mouse <i>C. J. Gordon</i>	R275
L-Leucine transport in liver of Antarctic fish in vivo at 0°C <i>A. E. V. Haschemeyer</i>	R280
Water regulation in weanling hypodipsic dorsomedial hypothalamic-lesioned rats <i>L. L. Bellinger and L. L. Bernardis</i>	R285
Renal and endocrine response to water deprivation in dog <i>A. Zucker, S. D. Gleason, and E. G. Schneider</i>	R296
Intraspecies allometry: correlation between kidney weight and glomerular filtration rate vs. body weight <i>H. Hackbarth, D. Büttner, and K. Gärtner</i>	R303
Catecholamine release and blood pressure changes induced by exercise in dogfish <i>D. F. Opdyke, R. G. Carroll, and N. E. Keller</i>	R306
Developmental study of adipose cellularity in lateral hypothalamic-lesioned Zucker obese rats <i>K. M. Milam, R. E. Keesey, L. H. Storlien, and J. S. Stern</i>	R311
Central and peripheral adrenergic modulation of carotid sinus-induced renin release <i>H. D. Schultz, J. E. Zehr, and A. Livnat</i>	R318
Entrainment of the circadian rhythm from the eye of <i>Aplysia</i> : role of serotonin <i>G. Corrent, A. Eskin, and I. Kay</i>	R326
Transmitterlike action of serotonin in phase shifting a rhythm from the <i>Aplysia</i> eye <i>G. Corrent and A. Eskin</i>	R333
Drug entry into and distribution within brain and cerebrospinal fluid: [¹⁴ C]urea pharmacokinetics <i>S. I. Rapoport, R. Fitzhugh, K. D. Pettigrew, U. Sundaram, and K. Ohno</i>	R339
Tardy occurrence of adipocyte hyperplasia in cafeteria-fed rat <i>A. Mandenoff, T. Lenoir, and M. Apfelbaum</i>	R349
Aberrations of circadian body temperature rhythms in rats with medial preoptic lesions <i>E. Satinoff, J. Liran, and R. Clapman</i>	R352
The glabrous epidermis of cavies contains a powerful battery <i>A. T. Barker, L. F. Jaffe, and J. W. Vanable, Jr.</i>	R358
Role of macula densa in renal nerve modulation of renin secretion <i>J. L. Osborn, M. D. Thames, and G. F. DiBona</i>	R367
Central dipsogenic effect of vasopressin <i>E. Szczepaniska-Sadowska, J. Sobocińska, and B. Sadowski</i>	R372
Chloride secretion and conductance of teleost opercular membrane: effects of prolactin <i>J. K. Foskett, T. E. Machen, and H. A. Bern</i>	R380
Chemical maturation in growing guinea pigs <i>H.-P. Sheng, R. A. Huggins, and C. Garza</i>	R390
Energy utilization by <i>Limulus</i> telson muscle at different sarcomere and A-band lengths <i>S. Davidheiser and R. E. Davies</i>	R394
Evidence for a direct action of thyroid hormone in specifying muscle properties <i>L. Nuoye, W. F. H. M. Mommaerts, D. R. Simpson, K. Seraydarian, and M. Marusich</i>	R401

EDITORIAL

- Structure and function, form and process
F. E. Yates

R409

INVITED OPINION

- Toward a concept of the functional unit of mammalian skeletal muscle
E. H. Bloch and A. S. Iberall

R411

MODELING METHODOLOGY FORUM

- Comment on "Parameter and structural identifiability concepts and ambiguities: a critical review and analysis"
K. R. Godfrey

R421

- Physiological mechanisms for thirst in the nonhuman primate
R. J. Wood, E. T. Rolls, and B. J. Rolls R423
- Role of the small bowel in regulating food intake in rats
R. L. Atkinson, J. H. Whipple, S. H. Atkinson, and C. C. Stewart R429
- Cardiovascular adjustments to laboratory diving in beavers and nutria
T. McKean R434
- Reduction of cerebrovascular reactivity during hypercapnia
A. L. López de Pablo, M. C. González, G. Dieguez, B. Gómez, and S. Lluch R441
- Effect of chronic altitude hypoxia on hematologic and glycolytic parameters
J. Clench, R. E. Ferrell, and W. J. Schull R447
- Pulmonary vein-atrial junction stretch receptors and the inhibition of drinking
M. J. Moore-Gillon and J. T. Fitzsimons R452
- Glucose and lactate kinetics and interrelations in an antarctic bird (emperor penguin)
R. Groscolas and A. Rodriguez R458
- Uridine regulation by the isolated rat liver: perfusion with an artificial oxygen carrier
A. Monks and R. L. Cysyk R465
- Hypothalamic and striatal dopamine receptor activation inhibits heat production in the rat
M. T. Lin, A. Chandra, B. L. Tsay, and Y. F. Chern R471
- Renal function, heart rate, and blood pressure during exercise and avoidance in dogs
A. Grignolo, J. P. Koepke, and P. A. Obrist R482
- Cholecystokinin suppresses food intake by inhibiting gastric emptying
T. H. Moran and P. R. McHugh R491
- Dissociation of dipsogenic and pressor responses to chronic central angiotensin II in rats
R. Di Nicolantonio, F. A. O. Mendelsohn, J. S. Hutchinson, Y. Takata, and A. E. Doyle R498
- Neuroendocrine control of Na⁺ balance in the fiddler crab *Uca pugilator*
C. W. Davis and I. R. Hagadorn R505
- Correlation of muscle activity with glycogen metabolism in muscle of *Ascaris suum*
M. J. Donahue, N. J. Yacoub, and B. G. Harris R514
- Effect of ethanol ingestion on plasma vasopressin and water balance in humans
G. Eisenhofer and R. H. Johnson R522
- Hormonal changes and enforced diving in the harbor seal *Phoca vitulina*
 II. Plasma catecholamines
A. J. Hance, E. D. Robin, J. B. Halter, N. Lewiston, D. A. Robin, L. Cornell, M. Caligiuri, and J. Theodore R528

Computer simulation of energy metabolism, in acidotic cardiac ischemia <i>M. J. Achs and D. Garfinkel</i>	R533
Mechanisms involved in central cardiovascular effects of prostaglandin F _{2α} <i>G. Feuerstein, C. J. Helke, R. L. Zerbe, D. M. Jacobowitz, and I. J. Kopin</i>	R545
Neural and vascular interaction in renin response to graded renal nerve stimulation <i>W. S. Ammons, S. Koyama, and J. W. Manning</i>	R552
Substrate metabolism in seasonally acclimatized American goldfinches <i>R. L. Marsh and W. R. Dawson</i>	R563
Perfused rat hindlimb wound model: λ-carrageenan induced <i>J. A. O'Connor, R. L. Scott, P. W. Mellick, and M. D. Caldwell</i>	R570
Regulation of brain temperature in pigeons: effects of corneal convection <i>B. Pinshow, M. H. Bernstein, G. E. Lopez, and S. Kleinhaus</i>	R577
Vasomotion in chicken foot: dual innervation of arteriovenous anastomoses <i>P. E. Hillman, N. R. Scott, and A. van Tienhoven</i>	R582
Blood chemistry homeostasis during prolonged fasting in the northern elephant seal <i>D. P. Costa and C. L. Ortiz</i>	R591
2-Deoxy-D-glucose and insulin modify release of norepinephrine from rat hypothalamus <i>M. L. McCaleb and R. D. Myers</i>	R596

LETTERS TO THE EDITOR

Preparation of ATP-MgCl ₂ and precautions for its use in the study and treatment of shock and ischemia <i>I. H. Chaudry</i>	R604
--	------

<i>Subject Index to Volume 11</i>	R607
<i>Author Index to Volume 11</i>	R613

American Journal of Physiology: Renal, Fluid and Electrolyte Physiology

No. 1. JANUARY 1982

EDITORIAL REVIEW

Methodologic considerations in the study of glomerular ultrafiltration

R. W. Osgood, H. J. Reineck, and J. H. Stein

F1

Toad bladder compliance and water permeability in response to stretch

P. Eggena

F8

Decreased luminal membrane transport of phosphate in chronic renal failure

K. A. Hruska, S. Klahr, and M. R. Hammerman

F17

Studies of the urinary acidification defect induced by lithium

N. Bank, P. D. Lief, H. S. Aynedjian, and B. F. Mutz

F23

Aldosterone and the enhanced natriuresis of hypertonic infusions in the dog

J. W. Childers and E. G. Schneider

F30

Effect of ventilatory rate on renal venous PGE₂ and PGF_{2α} efflux in anesthetized dogs

*A. J. Lonigro, D. W. Brash, A. H. Stephenson,
L. J. Heitmann, and R. S. Sprague*

F38

Luminal influences on potassium secretion: chloride replacement with sulfate

H. Velázquez, F. S. Wright, and D. W. Good

F46

Renal handling of dopa, dopamine, norepinephrine, and epinephrine in the dog

S. G. Ball, I. G. Gunn, and I. H. S. Douglas

F56

Aldosterone binding in isolated tubules. I. Biochemical determination in proximal and distal parts of the rabbit nephron

N. Farman, A. Vandewalle, and J. P. Bonvalet

F63

Aldosterone binding in isolated tubules. II. An autoradiographic study of concentration dependency in the rabbit nephron

N. Farman, A. Vandewalle, and J. P. Bonvalet

F69

PCO₂ measurements in surface proximal tubules and peritubular capillaries of the rat kidney

F. J. Gennari, C. R. Caflisch, C. Johns, D. A. Maddox, and J. J. Cohen

F78

SPECIAL COMMUNICATIONS

A new method for kidney perfusion in situ: application to dynamics of autoregulation

S. Simchon and S. Chien

F86

Coulometric acid-base titration in nanoliter samples with glass and antimony electrodes

B. Karlmark, P. Jaeger, H. Fein, and G. Giebisch

F95

LETTERS TO THE EDITOR

Kinetic constants for urate transport

*I. M. Weiner and J. P. Tinker; E. J. Weinman, H. O. Senekjian,
and S. C. Sansom*

F100

No. 2. FEBRUARY 1982

HOMER SMITH AWARD LECTURE

From toad bladder to kidney

A. Leaf

F103

Differences between renal tubular processing of glucagon and insulin

D. R. Peterson, F. A. Carone, S. Oparil, and E. I. Christensen

F112

Inhibition of ADH-stimulated water flow by stable prostaglandin endoperoxide analogues <i>J. H. Ludens and C. J. Taylor</i>	F119
Glucose and alanine inhibition of phosphate transport in renal microvillus membrane vesicles <i>P. Q. Barrett and P. S. Aronson</i>	F126
Interrelationships of ion transport in rat submaxillary duct epithelium <i>H. Knauf, R. Lubcke, W. Kreutz, and G. Sachs</i>	F132
Renal function in conscious rats with chronic unilateral renal denervation <i>P. R. Rogenes and C. W. Gottschalk</i>	F140
Renal and tubuloglomerular feedback effects of [Sar ¹ ,Ala ⁸]angiotensin II in the rat <i>D. W. Plotz and R. N. Roy</i>	F149
Urate uptake in membrane vesicles of rat renal cortex: effect of copper <i>R. G. Abramson, V. F. King, M. C. Reif, E. Leal-Pinto, and S. B. Baruch</i>	F158
Distribution of two model amino acids from cerebrospinal fluid to brain and blood <i>J. D. Fenstermacher and H. Davson</i>	F171
Hemodynamic and renal functional changes after acute unilateral nephrectomy in the dog: role of carotid sinus baroreceptors <i>J. C. Ayus and M. H. Humphreys</i>	F181
Functional adaptation to reduced renal mass in early development <i>R. L. Chevalier</i>	F190
Effects of long-term infusion of physiologic doses of 1-34 PTH on bone <i>H. H. Malluche, D. Sherman, W. Meyer, E. Ritz, A. W. Norman, and S. G. Massry</i>	F197

SPECIAL COMMUNICATIONS

Disappearance of calcium and other electrolytes from microvolume samples <i>M. Muhlert, M. Julita, and G. Quamme</i>	F202
---	------

No. 3. MARCH 1982

EDITORIAL REVIEW

Renal Na-K-ATPase: its role in tubular sodium and potassium transport <i>A. I. Katz</i>	F207
--	------

Thromboxane B ₂ and prostaglandin E ₂ in the rat kidney with unilateral ureteral obstruction <i>M. A. Whinnery, J. O. Shaw, and N. Beck</i>	F220
Transport of potassium in the rabbit pars recta <i>J. Work, S. L. Troutman, and J. A. Schaefer</i>	F226
Impact of hydrogen ion on fasting ketogenesis: feedback regulation of acid production <i>V. L. Hood, E. Danforth, Jr., E. S. Horton, and R. L. Tannen</i>	F238
Membrane fluidity and enzyme activities in brush border and basolateral membranes of the dog kidney <i>C. Le Grimellec, M.-C. Giocondi, B. Carrière, S. Carrière, and J. Cardinal</i>	F246
Energetics of tubular sodium reabsorption sensitive to ethacrynic acid and ouabain <i>O. M. Sejersted, P. A. Steen, and F. Kiil</i>	F254
Neural and extraneuronal catecholamine production by rat kidneys <i>R. K. Stephenson, M. J. Sole, and A. D. Baines</i>	F261
Conditions for enhancement of renin release by isoproterenol, dopamine, and glucagon <i>H. Holdaas, Ø. Langgaard, I. Eide, and F. Kiil</i>	F267
Determinants of proximal bicarbonate, chloride, and water reabsorption during carbonic anhydrase inhibition <i>M. G. Cogan and F. C. Rector, Jr.</i>	F274
Voltage-dependent calcium movement across the cortical collecting duct <i>J. E. Bourdeau and R. J. Hellstrom-Stein</i>	F285

SPECIAL COMMUNICATIONS

Marshall Barber and the origins of micropipette methods

D. A. Terreros and J. J. Grantham

F293

No. 4. APRIL 1982**EDITORIAL REVIEW**

New pathways for potassium transport in the kidney

R. L. Jamison, J. Work, and J. A. Schaefer

F297

Calcium-prostaglandin interaction on the action of antidiuretic hormone in the dog <i>T. Berl and A. E. Erickson</i>	F313
Cell osmotic water permeability of isolated rabbit proximal straight tubules <i>E. González, P. Carpi-Medina, and G. Whittembury</i>	F321
Mechanism of distal tubular chloride transport in <i>Amphiuma</i> kidney <i>H. Oberleithner, W. Guggino, and G. Giebisch</i>	F331
Potential-dependent D-glucose uptake by renal brush border membrane vesicles in the absence of sodium <i>S. Hilden and B. Sacktor</i>	F340
High-affinity Ca-Mg-ATPase along the rabbit nephron <i>A. Doucet and A. I. Katz</i>	F346
Abnormal tubular adaptation to dietary P _i restriction in X-linked hypophosphatemic mice <i>R. C. Mühlbauer, J.-P. Bonjour, and H. Fleisch</i>	F353
Substrate-selective maintenance of tissue K ⁺ in perfused rat kidney <i>J. J. Cohen and A. J. Black</i>	F360
Papillary plasma flow and tissue osmolality in chronic caval dogs <i>P. F. Faubert, S.-Y. Chou, J. G. Porush, I. J. Belizan, and S. Spitalewitz</i>	F370
Phosphate transport in the light segment of the rabbit cortical collecting tubule <i>G. R. Shareghi and Z. S. Agus</i>	F379
In vivo biosynthesis and turnover of glomerular basement membrane in diabetic rats <i>M. P. Cohen, M. L. Surma, and V. Y. Wu</i>	F385
Impaired renal response of splanchnic infusion of hypertonic saline in conscious cirrhotic rats <i>J. M. López-Novoa and M. Martínez-Maldonado</i>	F390
Anion permeabilities of the isolated perfused rabbit proximal tubule <i>D. G. Warnock and V. J. Yee</i>	F395
Heterogeneity of sodium-dependent D-glucose transport sites along the proximal tubule: evidence from vesicle studies <i>R. J. Turner and A. Moran</i>	F406
Renal sugar transport in the winter flounder. VI. Reabsorption of D-mannose <i>J. B. Pritchard, G. W. Booz, and A. Kleinzeller</i>	F415

No. 5. MAY 1982**EDITORIAL REVIEW**

A proposed role for adenosine in the regulation of renal hemodynamics and renin release

W. S. Spielman and C. I. Thompson

F423

Transcapillary exchange of molecular weight markers in the postglomerular circulation: application of a barrier-limited model*C. Trainor and M. Silverman*

F436

Nicotinamide restores phosphaturic effect of PTH and calcitonin in phosphate deprivation

T. J. Berndt, J. D. Pfeifer, F. G. Knox, S. A. Kempson, and T. P. Dousa

F447

Effect of adrenal enucleation on inner medullary collecting duct function in the rat <i>H. H. Bengale and E. A. Alexander</i>	F453
Regulation of PTH receptor-adenylate cyclase system of canine kidney: influence of Mn ²⁺ on effects of Ca ²⁺ , PTH, and GTP <i>E. Bellorin-Font, J. Tamayo, and K. J. Martin</i>	F457
Effects of acute potassium infusions with salts other than chloride on plasma renin activity <i>K. A. Kirchner and R. Mueller</i>	F463
Direct evaluation of the permeability of the rat proximal convoluted tubule to CO ₂ <i>M. S. Lucci, L. R. Puccacco, N. W. Carter, and T. D. DuBose, Jr.</i>	F470
Renal cortex ion composition and Na-K-ATPase activity in gentamicin nephrotoxicity <i>R. E. Cronin, K. L. Nix, E. R. Ferguson, P. M. Southern, and W. L. Henrich</i>	F477
Renal tubular transport of folic acid and methotrexate in the monkey <i>W. M. Williams and K. C. Huang</i>	F484
Nonoxidative glucose metabolism a prerequisite for formation of dilute urine <i>A. D. Baines and B. D. Ross</i>	F491
Proximal reabsorption during metabolic acidosis in the rat <i>M. G. Cogan and F. C. Rector, Jr.</i>	F499
Relationship among gluconeogenesis, QO ₂ , and Na ⁺ transport in the perfused rat kidney <i>P. Silva, R. Hallac, K. Spokes, and F. H. Epstein</i>	F508
Na and K transport across the cortical and outer medullary collecting tubule of the rabbit: evidence for diffusion across the outer medullary portion <i>J. B. Stokes</i>	F514
Acidification of luminal fluid by the rabbit cortical collecting tubule perfused in vitro <i>B. M. Koeppen and S. I. Helman</i>	F521
Control mechanisms of bicarbonate transport across the rat proximal convoluted tubule <i>Y. L. Chan, B. Biagi, and G. Giebisch</i>	F532
Effects of pH on potassium transport by renal distal tubule <i>B. A. Stanton and G. Giebisch</i>	F544
Mechanism for the phosphaturia of NH ₄ Cl: dependence on acidemia but not on diet PO ₄ or PTH <i>J. Guntupalli, B. Eby, and K. Lau</i>	F552

No. 6, JUNE 1982

EDITORIAL REVIEW

NaCl entry mechanisms in the luminal membrane of the renal tubule <i>D. G. Warnock and J. Eveloff</i>	F561
--	------

In vivo proximal tubular fluid-to-plasma chloride concentration gradient in the rabbit <i>R. C. Vari and C. E. Ott</i>	F575
Evidence for altered glomerular hemodynamics during acute nephron obstruction <i>I. Ichikawa</i>	F580
Systemic effects of NaHCO ₃ in experimental lactic acidosis in dogs <i>A. I. Arieff, W. Leach, R. Park, and V. C. Lazarowitz</i>	F586
Atrial receptor modulation of renal nerve activity in the nonhuman primate <i>J. P. Gilmore, S. Echtenkamp, C. R. Wesley, and I. H. Zucker</i>	F592
Relationship between plasma potassium concentration and renal potassium excretion <i>D. B. Young</i>	F599
Effects of lysine on bicarbonate and fluid absorption in the rat proximal tubule <i>Y. L. Chan and N. A. Kurtzman</i>	F604
Aldosterone and corticosterone binding and effects on Na ⁺ transport in cultured kidney cells <i>C. O. Watlington, F. M. Perkins, P. J. Munson, and J. S. Handler</i>	F610
Role of renal α-adrenoceptors mediating renin secretion <i>J. L. Osborn, G. F. DiBona, and M. D. Thames</i>	F620

Specialized function of carbonic anhydrase-rich and granular cells of turtle bladder <i>J. H. Schwartz, D. Bethencourt, and S. Rosen</i>	F627
Dopamine decreases fluid reabsorption in straight portions of rabbit proximal tubule <i>E. Bello-Reuss, Y. Higashi, and Y. Kaneda</i>	F634
Regulation of extrarenal potassium homeostasis by adrenal hormones in rats <i>M. J. Bia, K. A. Tyler, and R. A. DeFronzo</i>	F641
Renal responses to prolonged central volume expansion in conscious primates <i>D. A. Kass and M. C. Moore-Ede</i>	F649
Water reabsorption by papillary collecting ducts in the remnant kidney <i>J. P. Pennell and J. J. Bourgoigne</i>	F657
Na^+ transport properties of the peritubular membrane of cortical collecting tubule <i>E. Natke, Jr., and L. C. Stoner</i>	F664
Cimetidine and procainamide secretion by proximal tubules in vitro <i>T. D. McKinney and K. V. Speeg, Jr.</i>	F672
Permeability and channel structure of reptilian skin <i>G. D. Stokes and W. A. Dunson</i>	F681
Thermodynamic analysis of active sodium and potassium transport in the frog corneal epithelium <i>O. A. Candia and P. S. Reinach</i>	F690
Impaired energy metabolism in rat myocardium during phosphate depletion <i>N. Brautbar, R. Baczyński, C. Carpenter, S. Moser, P. Geiger, P. Finander, and S. G. Massry</i>	F699
Tubular handling of P_i in young growing and adult rats <i>J. Caverzasio, J.-P. Bonjour, and H. Fleisch</i>	F705
2-Deoxy-D-glucose transport in dog kidney <i>M. Silverman and R. J. Turner</i>	F711
Selective inhibition by epinephrine of parathyroid hormone-stimulated adenylate cyclase in rat renal cortex <i>E. A. Woodcock and C. I. Johnston</i>	F721
Role of vasopressin in hypertension: studies using the Brattleboro rat <i>R. L. Woods and C. I. Johnston</i>	F727
Na^+/H^+ antiporter of brush border vesicles: studies with acridine orange uptake <i>D. G. Warnock, W. W. Reenstra, and V. J. Yee</i>	F733
Role of vasopressin in fetal homeostasis <i>S. S. Daniel, R. I. Stark, M. K. Husain, L. V. Baxi, and L. S. James</i>	F740

SPECIAL COMMUNICATIONS

Amino acids enhance renal tubular absorption of the low-molecular-weight proteins insulin and growth hormone <i>R. Rabkin, T. I. Gottheiner, and T.-S. Tsao</i>	F745
---	------

LETTERS TO THE EDITOR

Addenda and correction. Molecular charge of horseradish peroxidase <i>W. M. Deen and C. R. Bridges</i>	F750
---	------

<i>Subject Index to Volume 11</i>	F751
<i>Author Index to Volume 11</i>	F757

